This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

NYPL RESEARCH LIBRARIES
3 3433 09075761 2

Google

Accessory
3-TOL
+

7 1918

NOTICE TO READERS.—When you finish reading this magazine place a one cent stamp on this notice, hand same to any postal employee, and it will be placed in the hands of our soldiers and sailors at the front. No wrapping—no address. A. S. Burleson, Postmaster-General.

THE ACCESSORY AND GARAGE JOURNAL

VOL. VIII. NO. 1. PAWTUCKET, R. I., MAY, 1918. $2.00 THE YEAR.

862394

INITIAL EDITION

JULY 1, 1918

TRACTOR WORLD

All issues of the

TRACTOR WORLD

will reach all tractor manufacturers, all tractor and farm implement and machinery dealers and a very large part of tractor owners.

Subscription Price, $2.00 a Year

The TRACTOR WORLD, devoted to the farm tractor industry, trade and user, will issue the first day of each month.

It will reflect the activities of the industry, dealing with design and engineering in non-technical terms, construction, sales and service.

It will devote a section to sales promotion that will be of exceptional interest to the trade, covering the country broadly and thoroughly.

It will specialize a department that will present to tractor owners and users mechanical information that will practically benefit them.

The magazine will be produced by an organization that covers all sections of the country—that will be in constant contact with the industry and the trade.

For advertising rates and publishing detail, address

TRACTOR WORLD

Published by

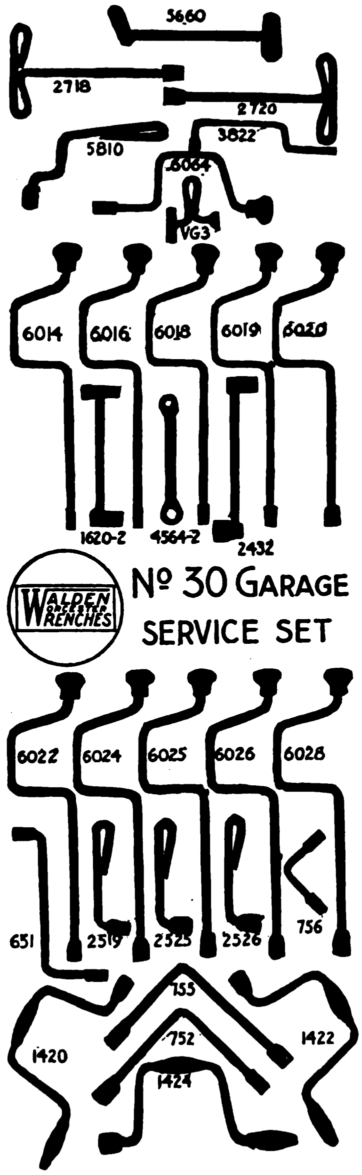
AUTOMOBILE JOURNAL PUBLISHING CO.

TIMES BUILDING, PAWTUCKET, R. I.

Publisher of *Motor Truck* *Automobile Journal* *Accessory & Garage Journal*

PD

No. 30 GARAGE SERVICE SETS


5660
2718
2720
5810
3822
6064
VG3
6014
6016
6018
6019
6020
1620-2
4564-2
2432
Nº 30 GARAGE
SERVICE SET
6022
6024
6025
6026
6028
651
2519
2525
2526
756
155
752
1420
1422
1424

A WRENCH combination perfectly adapted for work on any motor car, with which time and labor cost to the customer may be economized, and the productiveness of the shop and its facilities greatly increased.

These are special tools, designed after careful study of garage service, each serving a specific purpose and having qualities necessary for thoroughly good work.

These 30 wrenches, some with two sockets, are equivalent to 39 different sizes and types, as follows:

Offset Wrenches . .	**13**
Speed Wrenches . . .	**10**
L-Wrenches	**6**
Special Wrenches . . .	**5**
Demountable Rim Wrenches	**3**
Tee-Handle Wrenches .	**2**
Total	**39**

The combination was made to fit all popular makes of cars,—to work wherever particular type wrenches are necessary. Every condition that makes for economy and time saving has been anticipated and utility provided for.

With the No. 30 Garage Service Set you will have every wrench you will need. Your equipment will be standardized. The quality of work insured.

List Price, $20

WALDEN-WORCESTER
INCORPORATED
WORCESTER, MASS.

The G. H. Dyer Company's Products

INCLUDE

LABOR SAVING, TIME SAVING DEVICES

FOR EVERY

GARAGE MAN — REPAIR MAN

REGULAR
Ford Type Piston

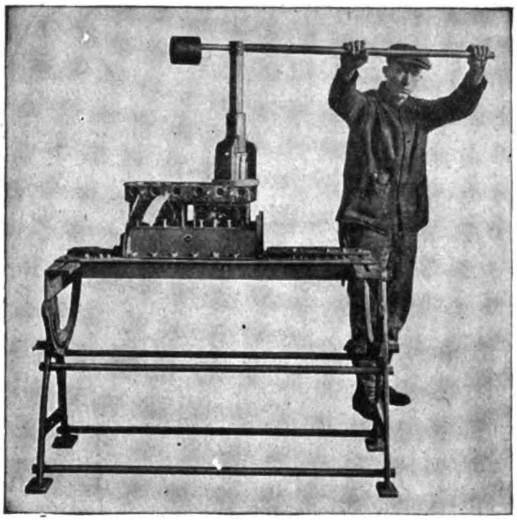
Made in Standard and Any Oversize

All Measurements Correct

Max. Variation 3 oz. in Weight

Step-Cut Rings High Finish

Highest Grade Throughout



FORD CYLINDER REAMER

1-32 Oversize

LIGHTWEIGHT
Ford Type Piston

Made in Standard and Any Oversize

ONE POUND LIGHTER THAN THE FORD PISTON

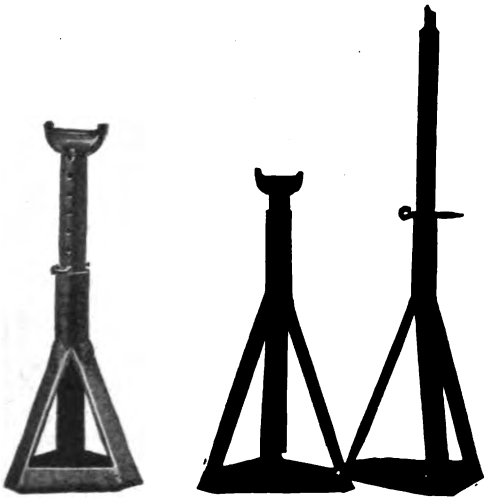
Adds power, speed, flexibility.
Lessens wear, vibration, cost.

No Better Piston Made

Step-Cut Rings High Finish

PRICE EXTREMELY LOW

Easy to Operate. Does Accurate, Quick Work. Makes Big Profits



DYER METALLIC BLOCKING

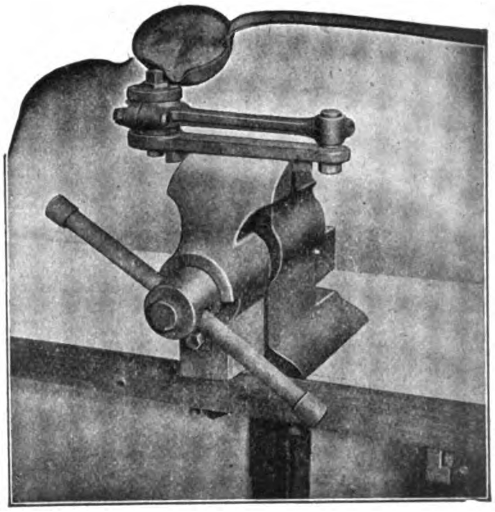
SAFE STRONG COMPACT INEXPENSIVE

Home-made blocking, boxes, etc., are dangerous and inconvenient

We Manufacture Oxy-Acetylene Apparatus

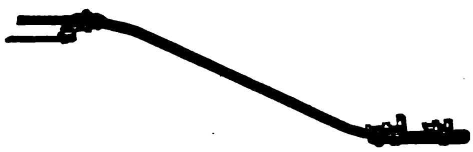
NOTED FOR

High Efficiency
Best Quality
Long Service
LOW PRICE



DON'T LOSE VALUABLE TIME waiting for Ford connecting rods. Transportation is slow—the supply low. Rebabbit the old rods in a FEW MINUTES for a FEW CENTS with DYER JIG.

EASY TO OPERATE. PERFECT WORK.



Buy from your jobber or direct

Write for Catalogue

With TOW-FORD one man in a Ford can tow and accurately steer *one* or *two* other Fords.

LIGHT STRONG EASILY ATTACHED LOW PRICED

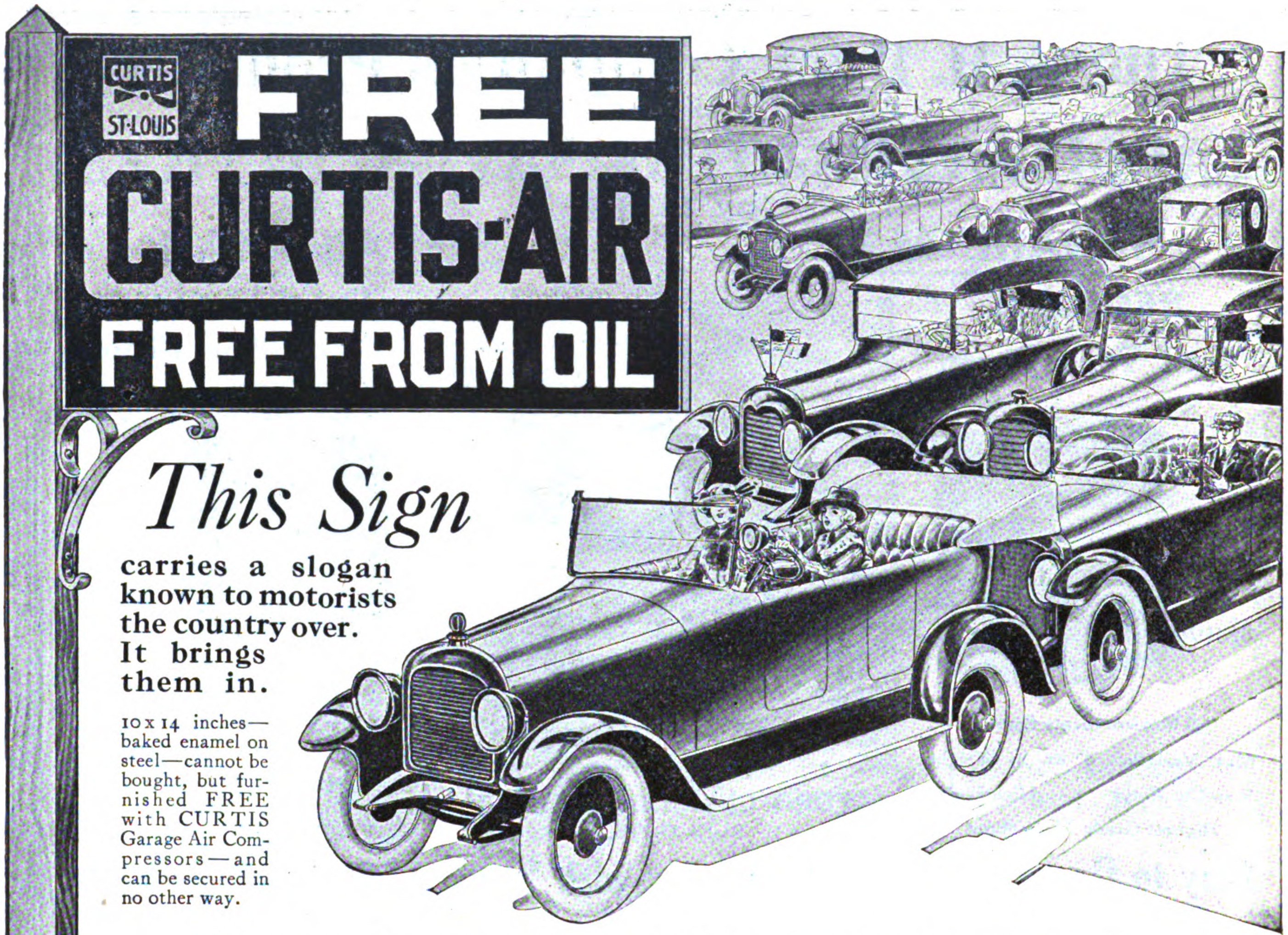
The Taylor Leakage-Proof Piston Ring. 3¾x¼

OIL TIGHT GAS TIGHT

Eccentric and One Piece 50c No Points to Break

Interlapping, Underlocking Joint

THE G. H. DYER CO., - - Cambridge, Mass.



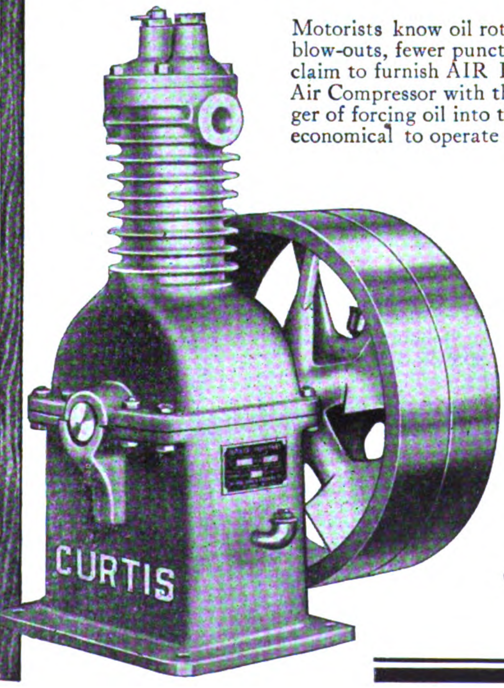
This Sign

carries a slogan known to motorists the country over. It brings them in.

10 x 14 inches—baked enamel on steel—cannot be bought, but furnished FREE with CURTIS Garage Air Compressors—and can be secured in no other way.

It's a sign of progress—a sign of efficiency—a sign that you are prepared to supply CURTIS AIR—FREE FROM OIL—the kind of Free Air Service the public demands. Get an edge on YOUR competitors—

Install a Curtis Compressor



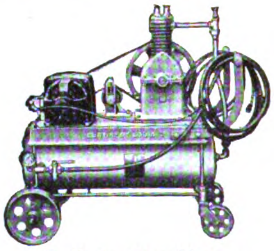
Motorists know oil rots tires—and that AIR FREE FROM OIL means less blow-outs, fewer punctures, greater tire mileage and less repairs. While others claim to furnish AIR FREE FROM OIL, the CURTIS is the ONLY Garage Air Compressor with the controlled splash oil system, which eliminates all danger of forcing oil into the air line. Reliable, requires practically no attention, economical to operate and guaranteed to stand up under the severest strains.

Exclusive Curtis Features:

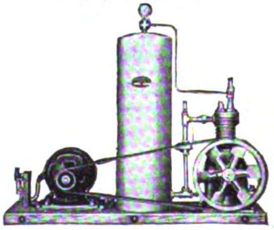
Patented controlled splash oil system.
Less oil required. No grease nor oil cups.
Fully enclosed, dust-proof, self-oiling.
Hand unloader permits starting against pressure.
Large fan flywheel keeps compressor cool.
High and low level oil filling gauge.
Valves can't drop into cylinder and wreck machine.
Bearings renewable, adjustable, non-cutting.
Two bearings—crank shaft not overhung.
Fewer parts—reducing maintenance cost.
Easiest to install—no special base required.

5 Sizes—Stationary or Portable

There is a Curtis Compressor to meet the requirements of your business. It will pay you to investigate. Ask your jobber—or write us for particulars and prices.



Built in Five Sizes—Any Current.



Built in Five Sizes—Any Current.

CURTIS PNEUMATIC MACHINERY CO.
1621 Kienlen Ave., St. Louis, Mo.
Branch Office—531-A Hudson Terminal, New York City

GATES VULCO-CORD BELTS
"The Standardized Fan Belt"
VULCO-CORD

TO JOBBERS AND DEALERS

We Have Proven That the Accessory Dealer Can Get 50% More Fan-Belt Business

50% of the fan-belt business representing renewals has been going through the car manufacturer, but it properly belongs to the accessory jobber and the accessory dealer.

How can you get this business? Simply by selling a standardized fan-belt.

A majority of dealers have been missing 85% of the fan-belt business, outside of the Ford sizes, because they could not afford to stock individual belts for all of the 184 well-known makes and models of cars.

The result: They have been supplying only three or four cars. The car manufacturer has been getting the rest.

Gates Vulco-Cord Belts are designed to overcome this very condition. They are standardized, which means that one belt will fit as many as 12 different cars and models.

Each belt is positively identified with every car it serves and the dealer has to stock only 8 or 9 sizes to fit every car in his territory that takes a flat-belt.

And there is no better fan-belt made.

Gates Vulco-Cord Belts are built like a cord-tire. They are ten-ply, endless, non-stretch, and positively no-slip—100% efficient.

246 jobbers stock them and over 20,000 dealers are selling them.

8 Standardized Sizes Fit Every Car Here Listed

Stock No.		Makes and Models
811	1911-16	Ford Model T
812	1917-18	Ford Model T
822	1916-17-18	Hudson Super "6"
	1918	Moon Model 636
	1917-18	National "6"
	1916-17-18	Saxon "6"
	1915	Overland Model 80 and 81
	1916	Overland Model 83
	1917-18	Overland "4" and "6" Model 85
	1916	Willys Knight Model 84
824	1917-18	Briscoe Model 424
	1915-16-17	Dort Models 4, 5, 5A, 9, 6, 9S, 9T.
	1918	Dort Models 8, 11, 11S, 11T, 8C
	1915	Grant Model T
	1916	Grant Model V
	1917-18	Hollier Six
831	1918	Auburn (with Continental Motor)
	1916	Buick Models C24, C25
	1915-16	Dodge
	1916-17-18	Empire Models 45, 50, 51
	1916-17-18	Paige "6-38" & "6-39"
	1916-17-18	Studebaker "4" & "6"
	1916-17	Velie "6"
832	1913	Buick Models 30 & 31
	1916-17	Buick Models D34, D35, D44, D45, D46, D47
	1918	Buick Models E34, E35, E44, E45, E46, E47, E49, E50
834	1916-17	Maxwell Model 25
835	1915-18	Allen Models 34, 37, 41
	1915	Buick Model D36, D37
	1916-17	Buick Model D54, D55, D4 (G. M. C. Truck)
	1916-17-18	Chandler Models 17, 18
	1917-18	Dodge

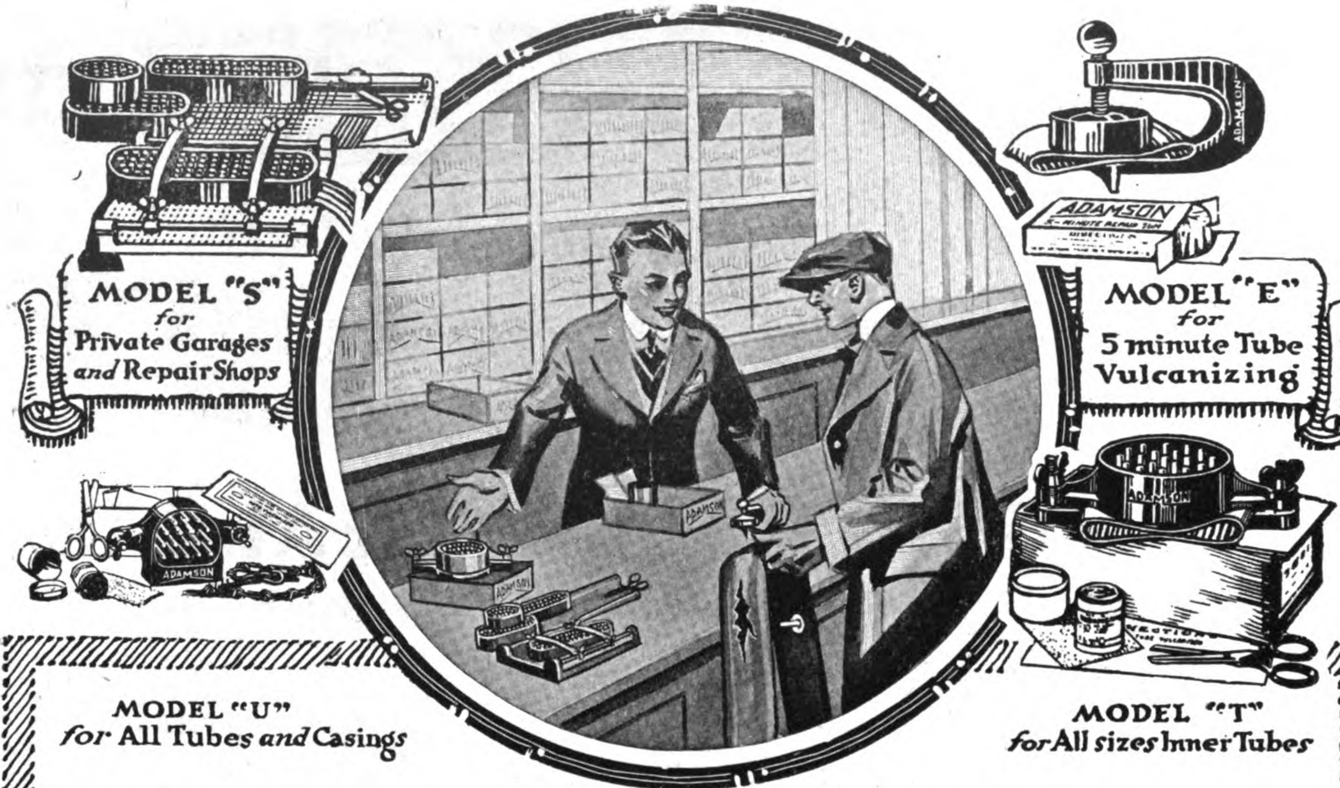
There is a Gates Vulco-Cord Belt for every flat-belt car.

GATES VULCO-CORD BELTS
"The Standardized Fan Belt"

MADE ONLY BY

The Colorado Tire and Leather Company, Denver

WORLD'S LARGEST MAKERS OF FAN BELTS


ADAMSON
ADAMSON 5-MINUTE REPAIR GUM
ADAMSON

MODEL "S" *for* Private Garages and Repair Shops

MODEL "E" *for* 5 minute Tube Vulcanizing

MODEL "U" *for* All Tubes *and* Casings

MODEL "T" *for* All *sizes* Inner Tubes

SELL HIM WHAT HE NEEDS

AID your customer in his fight against Tire Expense, by getting in the "Adamson Line"—a true and tried Vulcanizer for every repair a motorist can make.

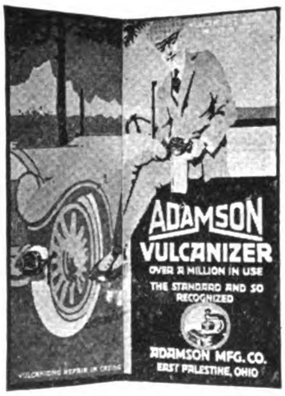
Remind him that every Adamson model uses that dependable and reliable fuel, Common Gasoline—easy to get, and easy to use. *Tell him* about the new Dry Fuel feature of Model "E" for repairing tube punctures in 5 minutes. *Show him* Adamson Repair Gum, the One material for best results with Any portable vulcanizer. *Sell him* the Adamson outfit he needs—Inexpensive to buy and use, Simple in operation, and Surest of all in results.

Outfits—
$1.00, $1.50,
$2.00, $12.00

ADAMSON
VULCANIZERS

Outfits—
$1.00, $1.50,
$2.00, $12.00

First Line of Defense for the Motorist


ADAMSON
VULCANIZER
OVER A MILLION IN USE
THE STANDARD AND SO RECOGNIZED
ADAMSON MFG. CO.
EAST PALESTINE, OHIO

Let us send you this store display and other Sales Helps

Loose treads, blow-outs and short mileage are caused by cuts in the tread and side-wall, which let moisture and dirt into the fabric to rot and weaken it.

Help your customer to stop tire waste and increase tire mileage, by selling him an Adamson Model "U" to heal these injuries and protect the fabric, the only sure and lasting way—by vulcanization.

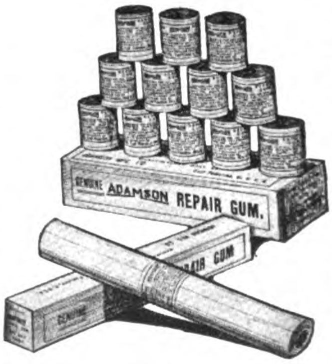
We are telling your customers that you sell Adamson Vulcanizers—are we right?

Sold by all Jobbers

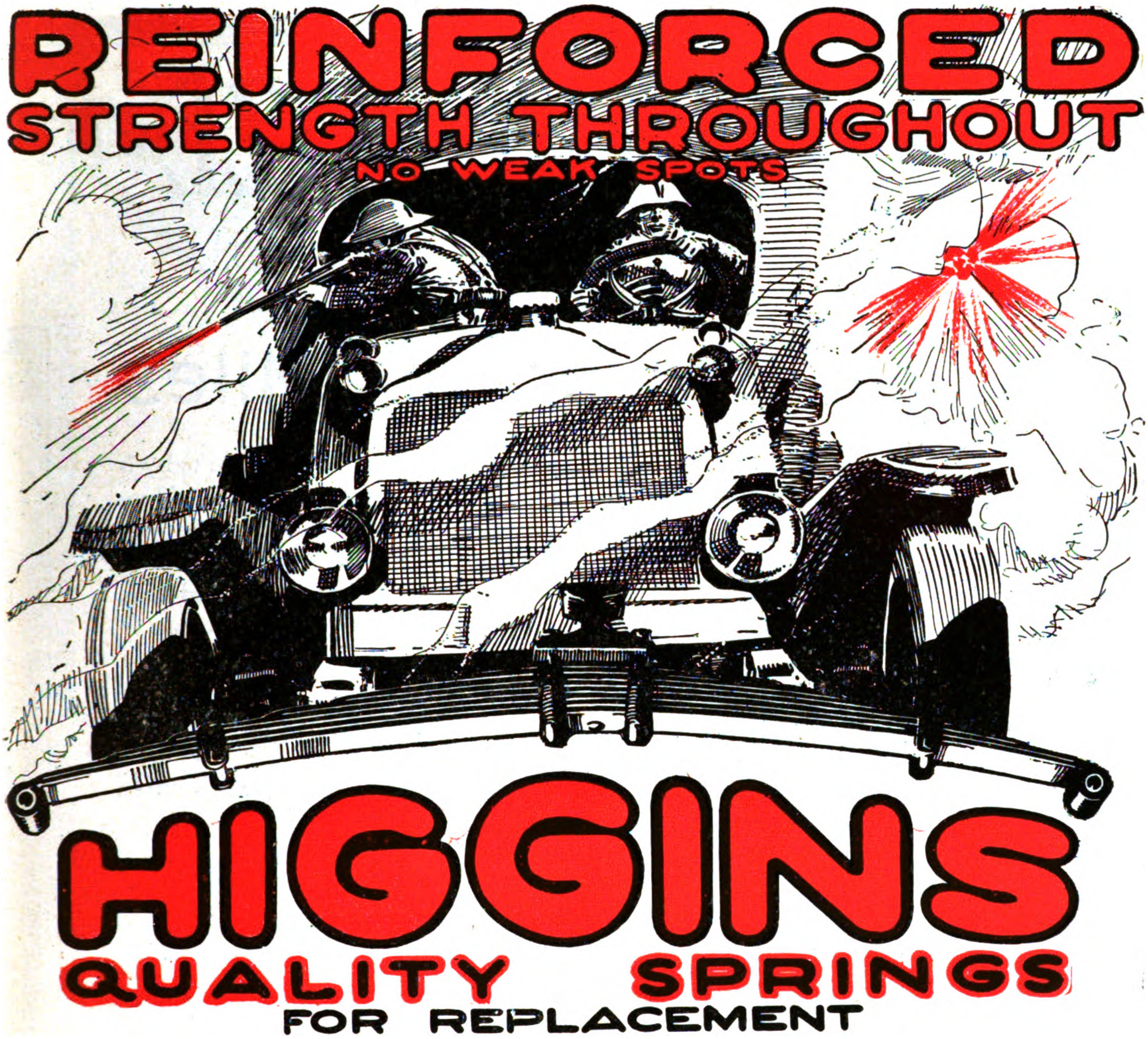
Adamson Manufacturing Co.

EAST PALESTINE, OHIO

We also make Adamson Ford Brake Shoes, Lined and Unlined


GENUINE ADAMSON REPAIR GUM.
REPAIR GUM

Sell Adamson Repair Gum for best results with any Vulcanizer



In *every* section there's strength enough to answer the severest demands—and then strength *"left over"*—a *surplus* of strength that *keeps* them resilient and powerful.

Better than actual day-to-day service requires. There's big value in the *quality* of service they give— big value in the long *length* of service rendered. Nibbed together at center. No hole. No center breakage. No center hump. No breakage outside malleable that holds springs together or *anywhere* else.

Made entirely of highest quality motor car spring steel—of special analysis—properly heat treated—tempered to greatest toughness and resiliency. Leaves lubricated before assembled—squeak and rust proof. Rigidly factory-tested. Guaranteed alike at all points. *Easiest for Dealer to sell* because they *give* user most service of the *best* quality.

Ask your supply house. If they refuse to supply you, ask us—for dealer's discounts and catalog listing 500 different styles.

HIGGINS SPRING & AXLE COMPANY
RACINE, WISCONSIN
DEPT. 529

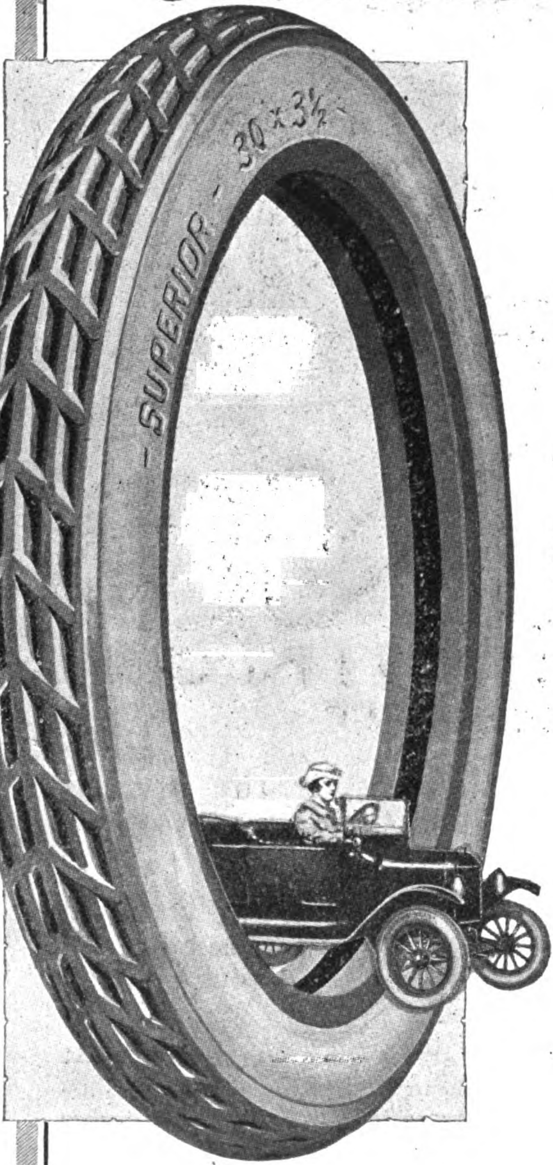
NO HOLE - NO BOLT - NO HUMP - NO JOLT

The SUPER-OVERSIZE Tire

For FORD Cars

15% oversize

Guaranteed for 7500 Miles



The biggest feature in the tire world today is the ***Superior Super-Oversize*** tire. Absolutely the biggest Ford tire ever produced with a 15% oversize, non-skid tread that has never been equaled for the tenacity of its road grip, and resilient rideability. There is a fortune in the Ford field for the dealers who secure a Superior agency now.

The Biggest Profit Possibility and Strongest Leader for Ford Trade

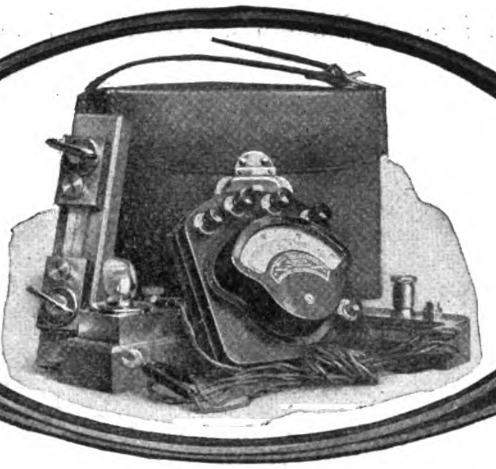
We have no salesmen; no middlemen. We sell direct to dealers on the most liberal percentage plan yet devised by an accessory manufacturer. Our dealers will be supported by an elaborate advertising campaign and direct-by-mail selling helps. Superior agencies are sold instantly to dealers who see these remarkable tires, and Superior tires are bought instantly by Ford owners who see the size and worth of the only tire on the market that is guaranteed for seventy-five hundred miles. This is a bona-fide guarantee that means what it says: Either these tires make good or we make good.

We want inquiries from experienced accessory or garagemen; tire experts preferably, who know real merit when they see it and who can sense the sales possibilities of a genuine leader. Superior agencies are going fast, and it is useless to try and prove the value of such an agency to those who cannot see it—if they read and believe this advertisement.

Write for our proposition—it's real! And your letter will not be answered by a piece of printed matter—it will receive the prompt personal attention of an executive.

SUPERIOR TIRE & RUBBER CO.
General Offices:
4511 N. Broad Street Philadelphia, Pa.

Superior Tires



Bespeaking Patience

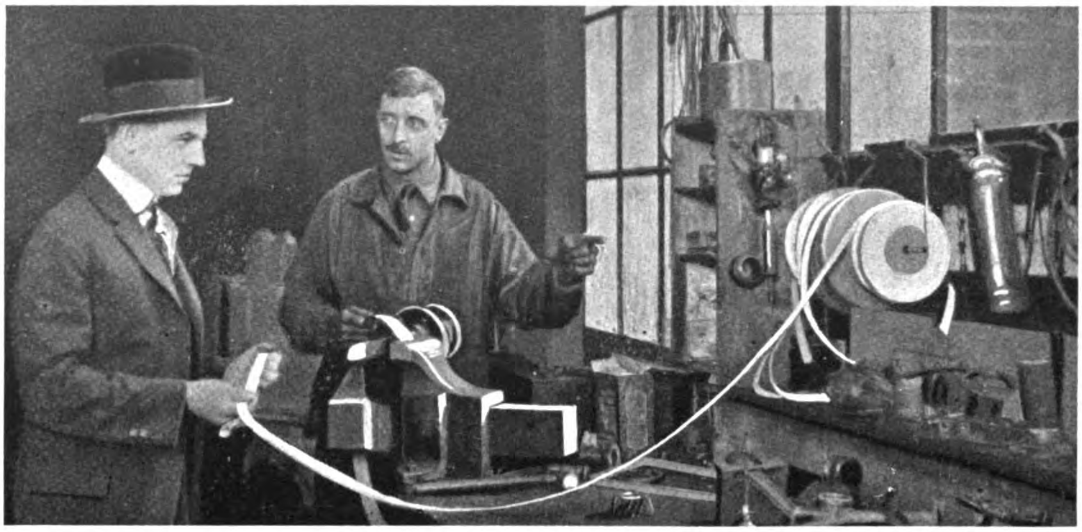
It has become necessary to advise prospective purchasers of the Weston Model 280 Garage Testing Instrument that deliveries can no longer be made promptly. Under present war conditions, there are unusual requirements which must receive our consideration in advance of commercial orders.

For this reason, we can accept your order only on the basis of delivery when possible. We suggest that you place it as early as you can.

Appreciating fully the needs of our customers and that the radical superiority of the Weston Model 280 Garage Testing Instrument is now well known to Garage and Service Station men, we promise to execute orders in the order of their receipt and as quickly as conditions will permit.

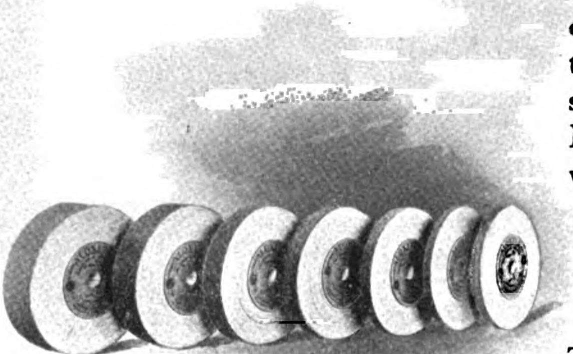
We are confident that this frank explanation of the situation will be accepted by prospective purchasers in the co-operative spirit in which it is submitted.

WESTON ELECTRICAL INSTRUMENT CO.
103 Weston Avenue Newark, N. J.
23 Branch Offices in the Larger Cities.



Say Boss, Get Me Aloxite Cloth Every Time

IT'S far better than the old-time emery cloth—Aloxite Cloth cuts faster and cleaner and that means that I can save time and get a better finish. And it sure is sharp—sharper than any cloth I ever have used. It's coated with that wonderful abrasive – Aloxite.



Aloxite Cloth in Economy Rolls

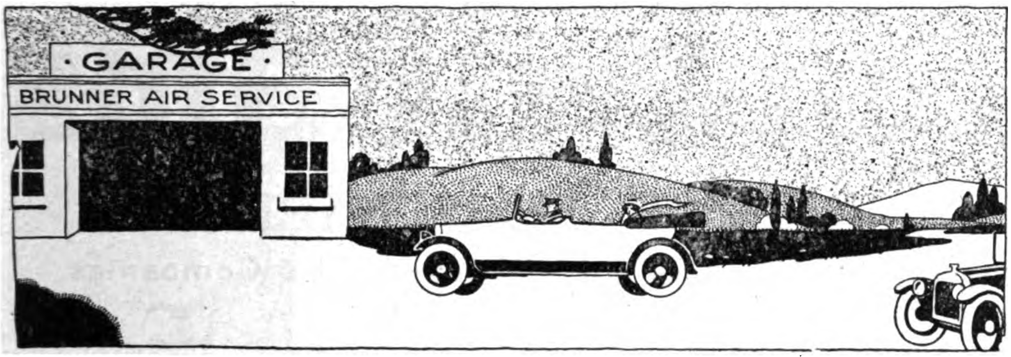
That's the economical handy way to get it. The rolls come in seven widths. You just snip off a piece from the roll of the desired width.

There are other Carborundum Products that you can use to mighty good advantage — Carborundum Valve Grinding Compound, grinders, wheels and sharpening stones.

Write for Circular

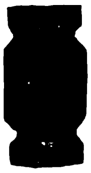
THE CARBORUNDUM COMPANY
NIAGARA FALLS, N. Y.

NEW YORK CHICAGO BOSTON PHILADELPHIA CLEVELAND CINCINNATI PITTSBURGH MILWAUKEE GRAND RAPIDS

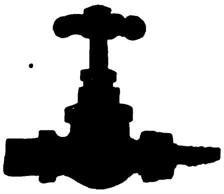


In the Garage Business Today Reputations Are Built on Service and the Very Foundation of Garage Service is a Dependable Air Compressor

INVESTIGATE THE BRUNNER AIR COMPRESSOR



Garagemen who investigate the air compressor field thoroughly before placing their order, invariably select the Brunner because they find a predominance of Brunner Air Compressors in the successful neighboring garages and the users always gladly recommend the Brunner because it has rendered high class service, which has helped them in building up their reputation. Years of dependable and efficient service in the garage have gained for the Brunner Air Compressor an enviable reputation, which is being maintained by the continued dependability of Brunner Compressed Air Service.



Dependable Compressed Air Tanks and Fittings Are Just as Necessary as an Efficient Air Compressor

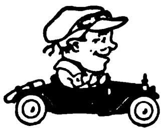
A leaky needle valve, check valve, tank or air hose will reduce the efficiency and life of a good air compressor and add to the operating cost—and an improperly constructed air tank, an inaccurate air gauge or an unreliable safety valve will render a compressed air plant absolutely dangerous.

Brunner Compressed Air Tanks and Fittings Are Both Safe and Reliable and Will Permanently Increase the Efficiency of Any Imperfect Installation

A length of Brunner "Resistoil" Air Hose would noticeably reduce this item of upkeep and convince any garageman that it will outwear two or more lengths of ordinary air hose.

Our new No. 15 Catalogue is the most complete and comprehensive book of its kind ever published. We will be glad to send you the catalogue and the name of the Brunner Jobber who covers your territory.

BRUNNER MANUFACTURING COMPANY



Main Office and Plant:
UTICA, N. Y.

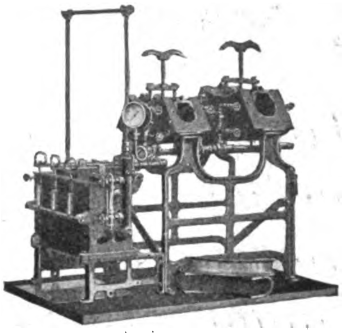
Cincinnati Branch:
CINCINNATI, OHIO

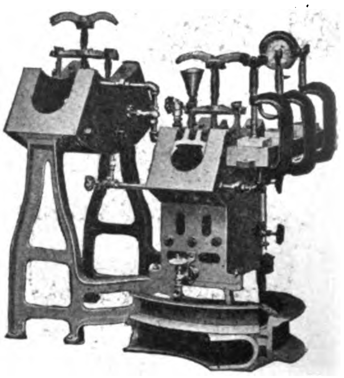
"The Motorist Who is Brunnerwise—Knows Brunner Service Satisfies."

Akron-Williams

TIRE REPAIR EQUIPMENT

Used, Sold and Recommended by All Leading Tire Companies



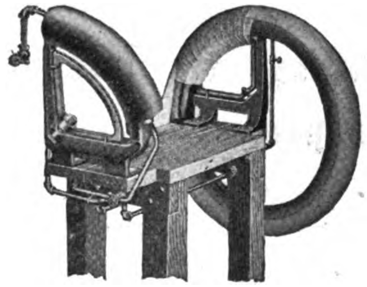


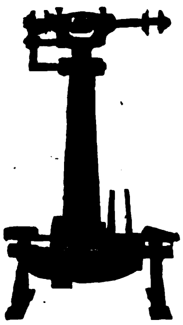
EVERY Akron-Williams machine and tool has been invented, designed and perfected with the help of expert engineers from the leading tire companies; and the equipment we offer you is the same as used in over 100 tire factories and sold to tire Dealers all over the World.

With these outfits you do the most efficient work, by the latest and most approved methods. Buyers of Akron-Williams equipment get the benefits of the latest improvements and GET THEM FIRST.

MOST COMPLETE LINE

The Akron-Williams line includes every approved time-and-labor saving device for modern tire and tube repairing; there is an outfit for every size shop. No equipment is too large for us—no tools too small.



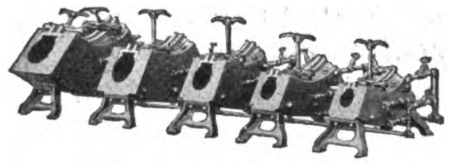


THIS YEAR—REPAIR TIRES

The high price of tires has DOUBLED tire repairing and created splendid opportunities for this line as an individual business or a department of your store or shop. Start Right—with an Akron-Williams outfit—and add equipment as your business increases.

☞ PROMPT SHIPMENTS ☜

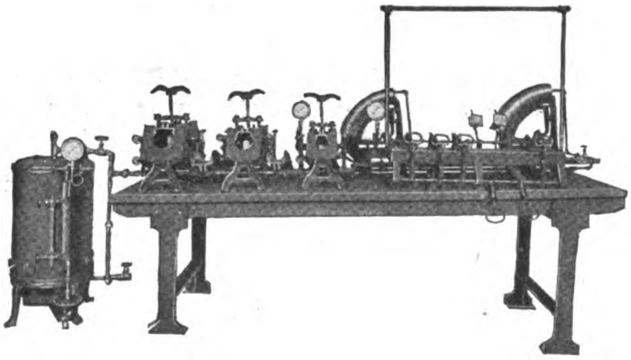
Send for New Catalog.



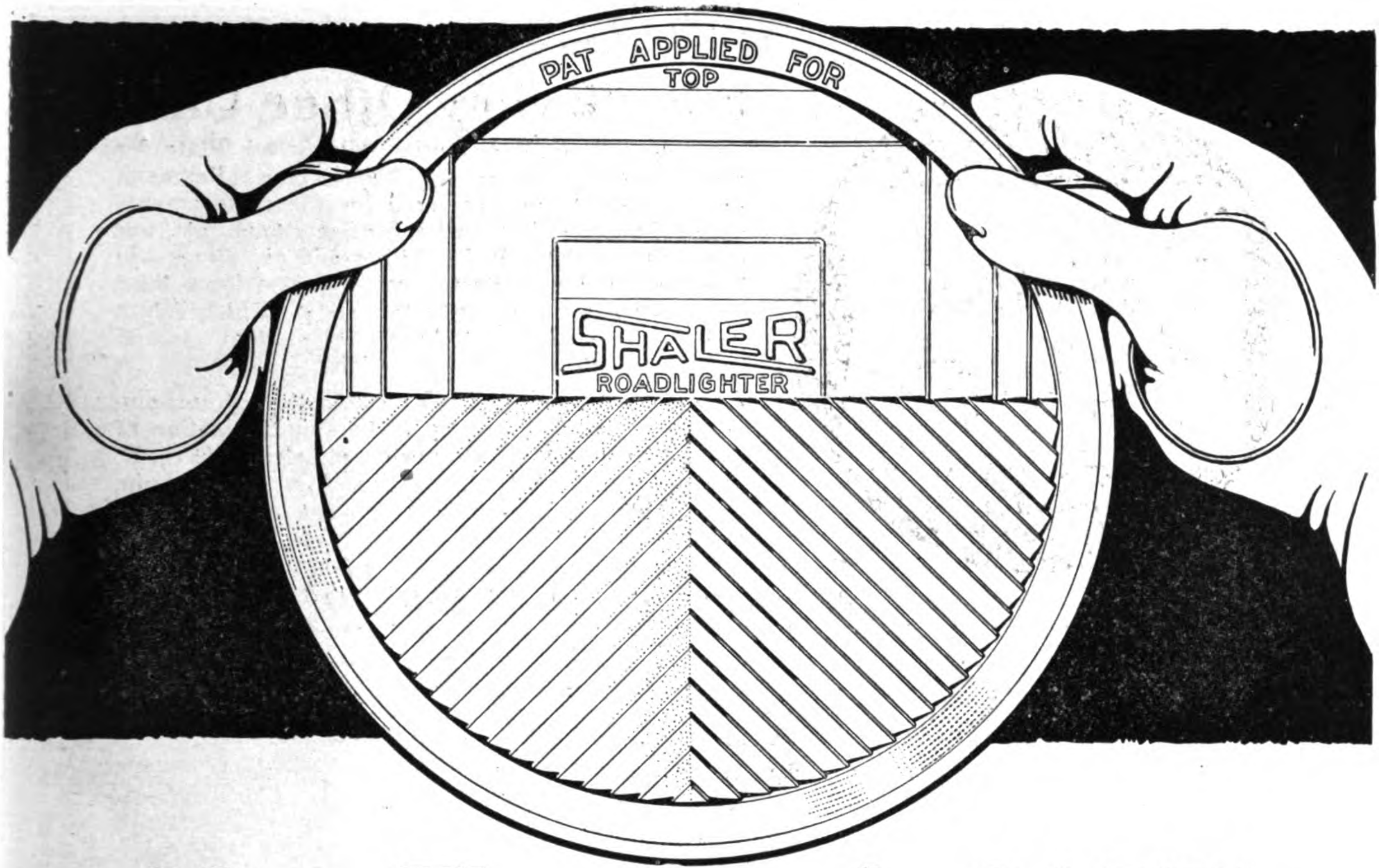
The Williams Foundry and Machine Co.
Ash Street Akron, Ohio

Exclusive distributors for California:
The Waterhouse & Lester Co., San Francisco, Oakland & Los Angeles

AKRON-WILLIAMS A-W PRODUCTS



AKRON-WILLIAMS A-W PRODUCTS



More Than Legal—SAFE!

because it gives a brighter and safer driving light than clear glass headlights, yet has no glare—absolutely none—and conforms to all "no-glare" laws. It obviates the need of spotlights, dimmers, auxiliary headlights and high candle power bulbs.

SHALER ROADLIGHTER

Protects You Against Danger

Practically every headlight lens on the market is designed primarily to *protect the other fellow*. The SHALER Roadlighter is the only headlight device that protects the USER against glare accidents—as well as the other fellow.

SHALER Roadlighters protects the *user* against the glare of headlights he meets by throwing on the edge of road so strong a light that no matter how intense the glare, he will not be blinded but can see the edge clearly and pass in safety without slowing down.

Limited Offer to Dealers Only

We want every automobile accessory dealer in the United States to try out a pair of SHALER Roadlighters on his own car—*at our expense.*

Mail the coupon for full particulars regarding this big offer. There is no obligation—don't put it off—clip and mail coupon *now*.

C. A. Shaler Co. 9252 Fourth Street
Waupun, Wis.

DEALERS' COUPON

C. A. SHALER CO. 9252 Fourth Street., Waupun, Wis.

Gentlemen: Send me full particulars about your offer to let dealers try out a pair of SHALER Roadlighters at your expense. This obligates me in no way.

Name..

Address..

City and State..

My Jobber's Name Is..

GARAGE REPAIR SET
FOR FORD CARS
G T D
No. 2501

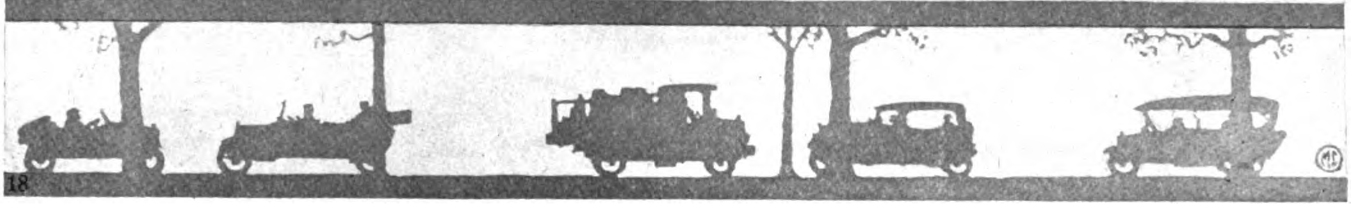
For "Every Other Car"

Here is a complete Automobile Screw Plate for Ford cars, consisting of Taps, Dies, Reamers, Stocks, Tap Wrenches fitted for the requirements of the Ford. It is called a Garage Repair Set, but is equally valuable to the dealer and car owner—in fact every one who has occasion to care for a Ford car can use and needs this set. It is furnished in a well made wooden box, handy for general use and to carry on the road to repair jobs.

As Ford led in standardized production of automobiles, so has G. T. D. led in the standardization of screw threads. This set consists of selected G. T. D. products to fit the Ford requirements. It is a sound investment, as proven by the large numbers sold and in use.

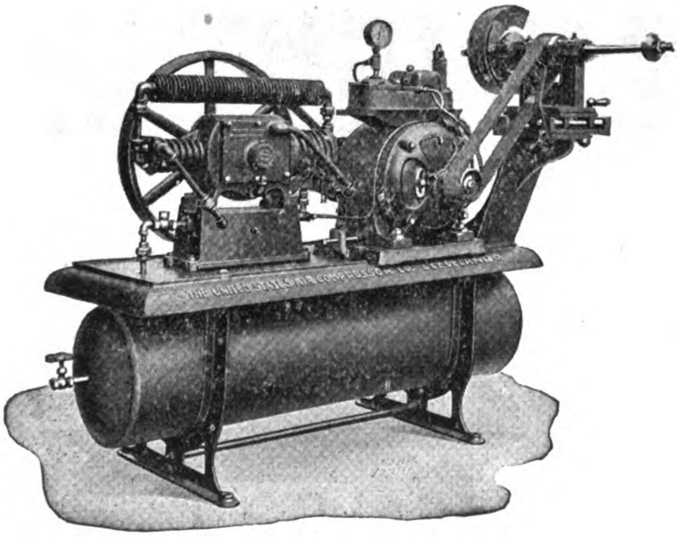
On sale by the best dealers—write us for particulars and catalog.

GREENFIELD TAP & DIE CORPORATION
Greenfield Massachusetts, U. S. A.
New York, 28 Warren St. Chicago, 13 South Clinton St.
Canadian Plant, Wells Brothers Company of Canada Limited, Galt, Ontario.



2 Valuable Machines in 1

Saves Money, Time and Valuable Space, Gives Greater Service and All 'Round Efficiency



NO business man would buy two motors when one would serve his purpose—neither would he buy and install a countershaft or hangers, belts and shafting when such action with the attending expense could be avoided.

The U. S. De Luxe Two Stage Combined Compressor and Buffer or Grinder Head not only avoids these expenses, but gives new and valuable service not heretofore obtainable. It combines the De Luxe Automatic Air Compressor, which has been sold for years and is now recognized as the best machine obtainable, with a buffer or grinder head of the most approved design. A single motor operates either or both machines.

Motor and compressor are fully enclosed and absolutely protected against dust and dirt from buffer. Compressor or buffer can be operated singly or together, while automatic controls prevent overcharging of tank.

A new circular is just off the press, which describes the many advantages of this machine in detail.

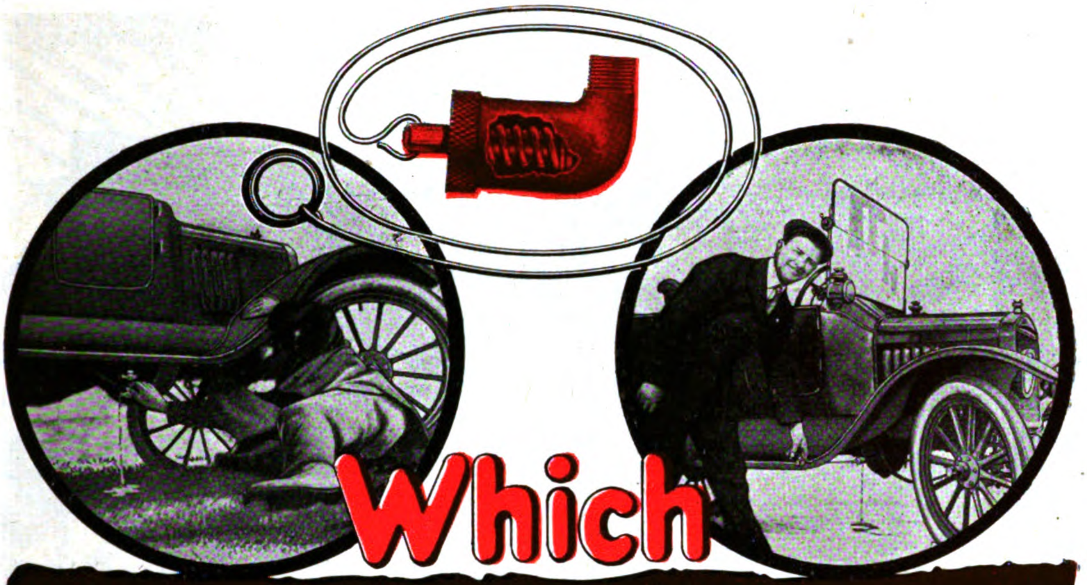
The UNITED STATES LINE comprises 20 different numbers in TWO-STAGE and SINGLE STAGE TYPES, and various individual equipment adapted for forming combinations of almost unlimited kinds and capacities.

Every garage and tire repair man should write for literature and become familiar with U. S. Air Compressors, whether in the market at present or not.

The United States Air Compressor Co.,
6538 Carnegie Ave., Cleveland, Ohio

Please send circular on new combination machine, also your new Catalog advertised in Accessory and Garage Journal to

Name...Address.......................................City...



? How Do You Test the Oil In Your Ford ?

Do you climb under your Ford to turn on your oil cocks -- and get dusty, dirty and all smeared up with the grease? - - - - **OR** **Do you simply step to the side of the car and with a gentle pull release the AUTOMATIC VAPORATOR OIL COCK?**

VAPORATOR OIL COCKS can be installed in a Ford in five minutes or less. You merely unscrew the Ford Oil Cock and screw in the Vaporator Oil Cock. That's all there is to it except for punching a small hole in the edge of tne Fender so that the connecting wire can be passed through. Vaporator Oil Cocks last the lifetime of car. Won't get out of order. Won't clog.

Vaporator Oil Cocks Are Selling by the Thousands

So far as we know, there has never been a Ford owner who has seen the Vaporator Oil Cock work, who hasn't immediately purchased a Vaporator Oil Cock. The convenience of this Cock is so great and the price so small that no one can afford to be without it.

Send for a Vaporator Oil Cock Today On Money-Back Basis, Price $1.00

USE THE COUPON. When the Vaporator Oil Cock arrives, use it ten full days and if at the end of that time you don't say it's the greatest convenience you ever had on your car, send the Oil Cock back and we will send you your dollar back. Tear out the coupon now before you forget. Pin a dollar bill to the coupon and mail it to us.

FREE LITERATURE will be sent to anyone writing for it.

SPECIAL NOTICE: Every Ford has two oil cocks. Some Ford owners test their oil from the bottom cock: some test it from the top cock and some test it from both cocks. If you have been testing your oil from the bottom cock, put your Vaporator Oil Cock at the bottom. If you have been testing from the top cock, put it at the top. While if you have been testing from both cocks, get two Vaporator Oil Cocks.

COUPON. **VAPORATOR MFG. COMPANY**
2741 Washington Ave. St. Louis, Mo.

Send me........Vaporator Oil Cocks on your Money-Back Ten-Day Basis. I enclose herewith $........

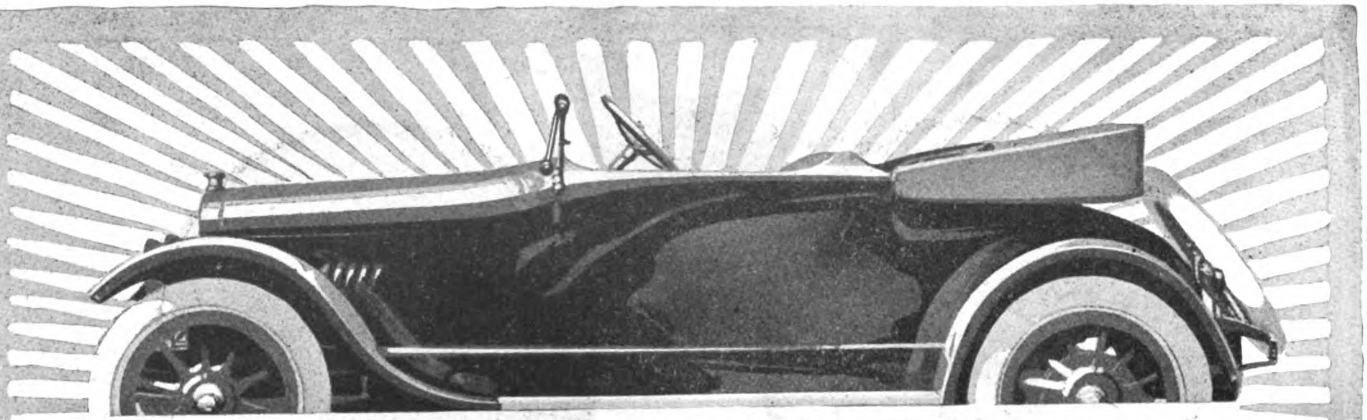
Name..

Address..........................

City..........................State............

DEALERS:—

You make good profits on VAPORATOR OIL COCKS. Send a dollar for one Vaporator Oil Cock, and when you order a quantity credit will be allowed. LITERATURE SENT FREE.



ZIT THE AUTOMOBILE DRY WASH

If You Want a Good Seller—Stock ZIT!

ZIT is the heavy artillery of Motordom.

Cleans cars in a flash!

Just spray it on with the Westfield Junior Sprayer—rub in with a dry cloth—and ZIT!—the car fairly sparkles. ZIT just simply *eats up* dust and dirt!

Cleans up in sales, too!

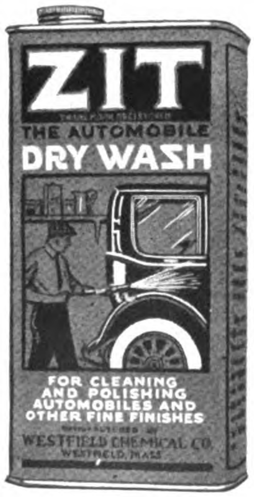
ZIT is a lively seller! The easy way it does its job has built a big demand for it. So ZIT moves along in a hurry leaving a nifty pile in the good old cash drawer for the man-behind-the-counter.

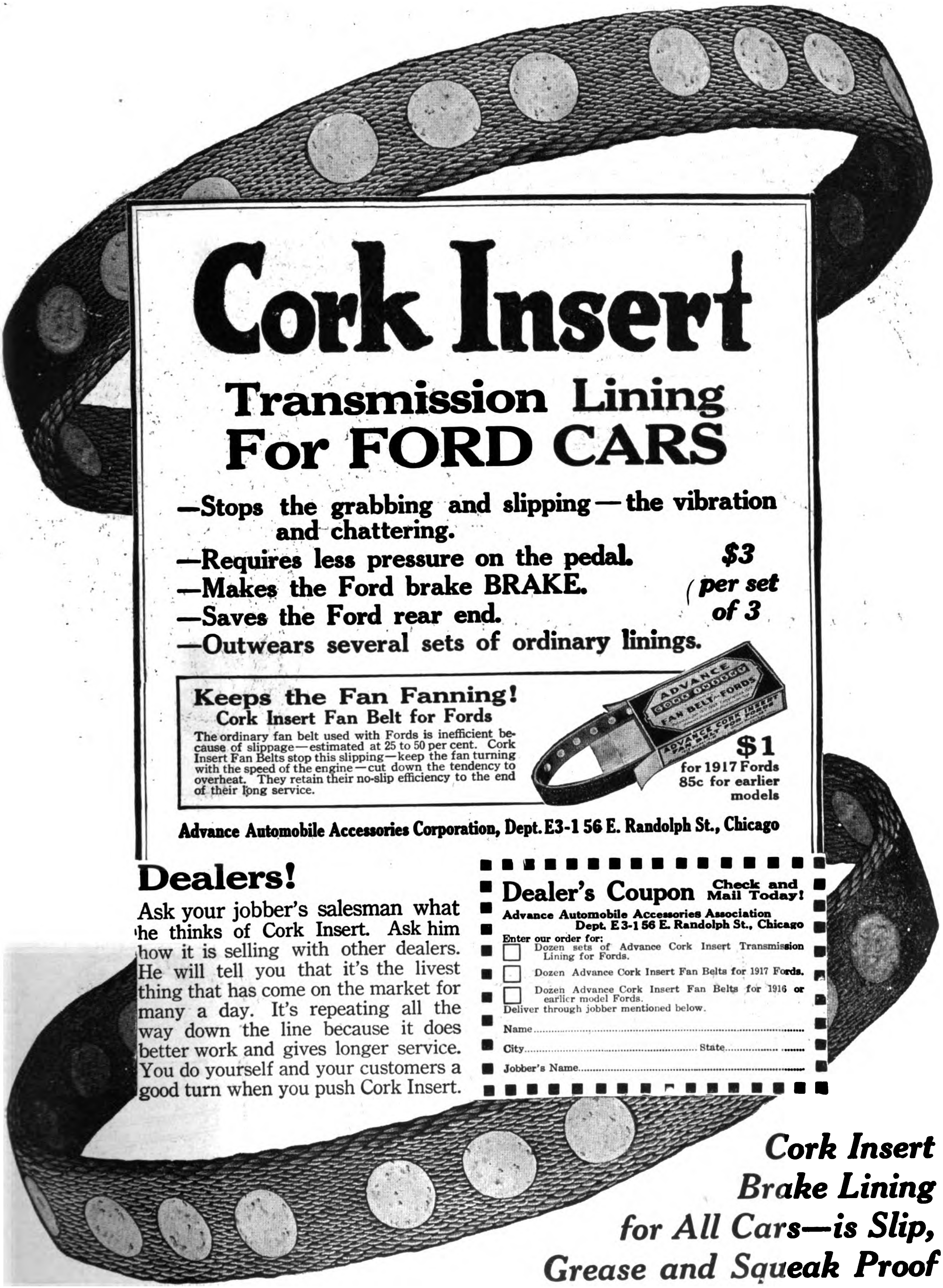
A can free with an order for two dozen.

Just to get acquainted—to get ZIT on your shelves—order two dozen and an extra can (extra profit) goes along with your order, free. Write for full information.

WESTFIELD CHEMICAL CO., Westfield, Mass.

Salesmen who sell automobile supplies can make good money handling ZIT as a side line. Write for particulars.


ZIT
THE AUTOMOBILE
DRY WASH
FOR CLEANING AND POLISHING AUTOMOBILES AND OTHER FINE FINISHES
WESTFIELD CHEMICAL CO.
WESTFIELD, MASS.


ADVANCE
CORK INSERT
FAN BELT FORDS
ADVANCE CORK INSERT FAN BELT FOR FORDS

Cork Insert

Transmission Lining For FORD CARS

—Stops the grabbing and slipping—the vibration and chattering.
—Requires less pressure on the pedal.
—Makes the Ford brake BRAKE.
—Saves the Ford rear end.
—Outwears several sets of ordinary linings.

$3 per set of 3

Keeps the Fan Fanning!

Cork Insert Fan Belt for Fords

The ordinary fan belt used with Fords is inefficient because of slippage—estimated at 25 to 50 per cent. Cork Insert Fan Belts stop this slipping—keep the fan turning with the speed of the engine—cut down the tendency to overheat. They retain their no-slip efficiency to the end of their long service.

$1
for 1917 Fords
85c for earlier models

Advance Automobile Accessories Corporation, Dept. E3-1 56 E. Randolph St., Chicago

Dealers!

Ask your jobber's salesman what he thinks of Cork Insert. Ask him how it is selling with other dealers. He will tell you that it's the livest thing that has come on the market for many a day. It's repeating all the way down the line because it does better work and gives longer service. You do yourself and your customers a good turn when you push Cork Insert.

Dealer's Coupon

Check and Mail Today!

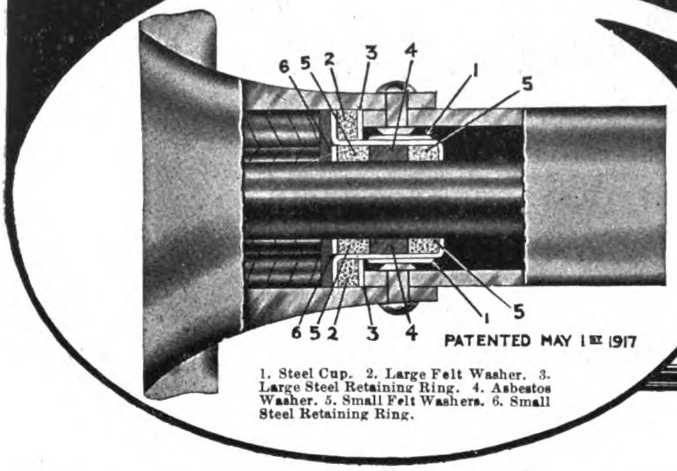
Advance Automobile Accessories Association
Dept. E 3-1 56 E. Randolph St., Chicago

Enter our order for:
☐ Dozen sets of Advance Cork Insert Transmission Lining for Fords.
☐ Dozen Advance Cork Insert Fan Belts for 1917 Fords.
☐ Dozen Advance Cork Insert Fan Belts for 1916 or earlier model Fords.
Deliver through jobber mentioned below.

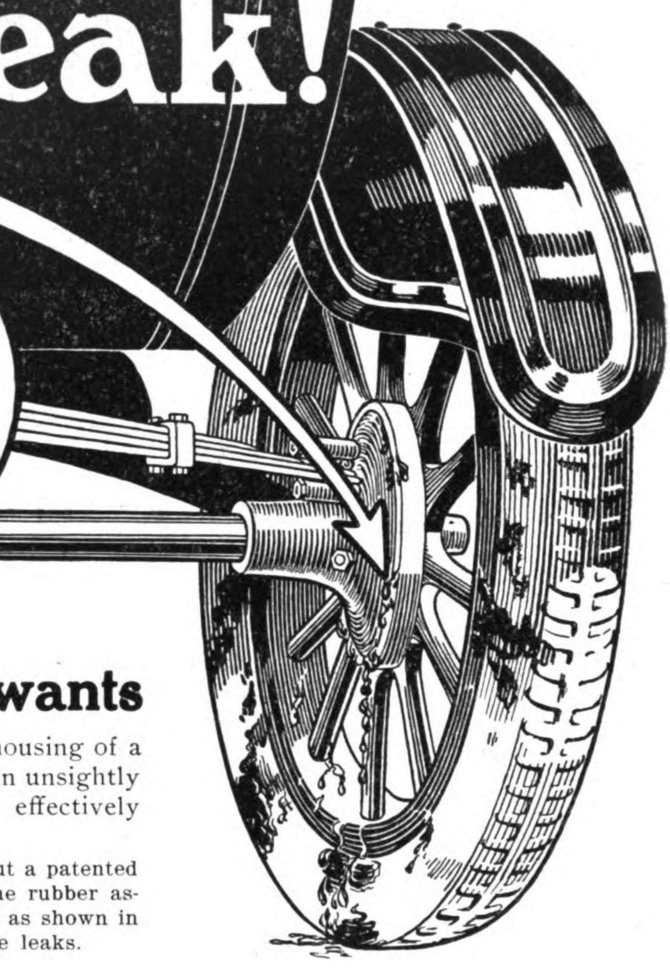
Name ....
City .... State ....
Jobber's Name ....

Cork Insert Brake Lining for All Cars—is Slip, Grease and Squeak Proof

Stop that grease leak!


6 5 2 3 4 1 5
6 5 2 3 4 1 5
PATENTED MAY 1st 1917

1. Steel Cup. 2. Large Felt Washer. 3. Large Steel Retaining Ring. 4. Asbestos Washer. 5. Small Felt Washers. 6. Small Steel Retaining Ring.



What every Ford owner wants

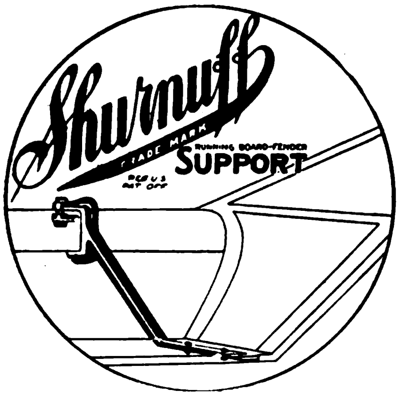
You know that grease leaking from the rear axle housing of a Ford costs the owner money, rots his tires and makes an unsightly mess on the wheel. This grease leak can be stopped effectively with Shurnuff Grease Retainers.

Not an ordinary felt washer which soon needs replacing, but a patented retainer, consisting of three extra high grade felt washers, one rubber asbestos washer, steel cup and retaining rings. When assembled as shown in cut, it is the most effective and lasting way of stopping grease leaks.

A pair costs only 90c retail. (In Canada—$1.35)
Ford owners who see them will buy them.

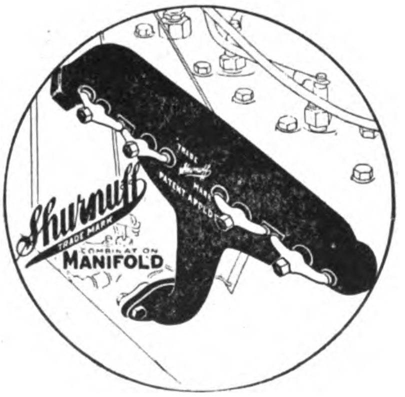
The price is so low and the work they do so important, that you can sell every Ford owner in your section who knows that you have them to sell. Each set is packed in an attractive carton for counter display, and a dozen sets make up a dealer's size case. Order a dozen from your jobber today and find out how fast they sell.

All Shurnuff Ford necessities are sure enough fast sellers. All guaranteed. All packed in attractive cartons for shelf display. Carried by jobbers everywhere. Write us for special information.


Shurnuff
TRADE MARK
RUNNING BOARD-FENDER
SUPPORT
REG. U.S. PAT. OFF

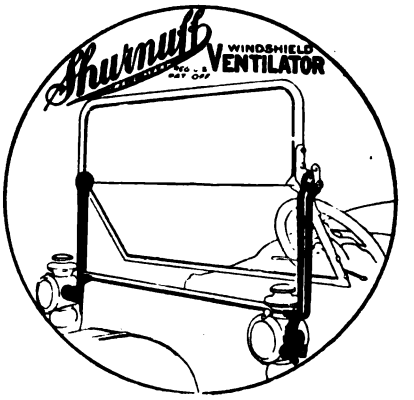
Stops sagging of running board. eliminates excessive vibration of front fender, reduces shocks and stabilizes the car. Needed on all Fords. Saves battery from damaging vibration.

Price per pair	**$4.50**
West of Rockies	**4.75**
In Canada	**6.75**


Shurnuff
TRADE MARK
COMBINATION
MANIFOLD
PATENT APPLIED

Combines intake and exhaust so that heat from latter dries incoming gasoline and vaporizes it perfectly. Result: smoother running, more power, more miles per gallon, less carbon.

Price	**$9.00**
West of Rockies	**10.00**
In Canada	**12.50**


Shurnuff
TRADE MARK
REG. U.S. PAT. OFF
WINDSHIELD
VENTILATOR

Gives a Ford all the ventilating features and dust and rain protection of the high priced car. Rainproof at sides, top and bottom. Quickly and easily installed.

Price	**$7.50**
West of Rockies	**7.75**
In Canada	**11.25**

Shurnuff Mfg. Co. Dept. E. St. Louis, Mo.

The ACCESSORY and GARAGE JOURNAL
Devoted Exclusively to the Automobile Trade and Allied Interests.

THE NEW YORK PUBLIC LIBRARY
862394
ASTOR, LENOX AND TILDEN FOUNDATIONS
R 1920 L

VOL. VIII. PAWTUCKET, R. I., MAY, 1918 No. 1

Plan For Standardizing Tire and Rim Sizes

When Operative The Number of Sizes and Styles of Pneumatics Manufactured and Carried In Stock Will Be Reduced to Twenty-Eight—Car Production Curtailment Discussed

AT A JOINT meeting of the directors of National Automobile Chamber of Commerce and the War Service Committee of the Rubber Industry in New York on Thursday, May 9, formal approval was given by the motor car builders to the plan for simplifying and standardizing pneumatic tire and rim sizes, in accordance with the suggestion of the Commercial Economy Board of the Council of National Defense.

When the plan becomes operative the number of sizes and styles of tires manufactured and carried in stock, to the ultimate benefit of the makers, dealers and customers, will be reduced from approximately 200 to 28, thus conserving manufacturing facilities, reducing capital invested in raw materials and finished product, and giving better service to automobile owners by eliminating a majority of the sizes and styles now required. The schedule calls for seven sizes of rims and nine sizes of pneumatic tires, adequate to equip any motor vehicle up to a two-ton truck.

The tire men requested the conference with the N. A. C. C. and were able to show the advantages of standardization in such a way that prompt approval was given to the plan, the adoption of which will be recommended to all automobile manufacturers.

Charles Clifton, president of the N. A. C. C., presided at the meeting. The other directors present were Hugh Chalmers, Chalmers Motor Co.; R. D. Chapin, Hudson Motor Car Co.; Carl H. Pelton, Maxwell Motor Co.; C. C. Hanch, Studebaker orporation; H. H. Rice, General Motors Co.; John N. Willys, Willys-Overland Co.; Windsor T. White, White Motor Co.; R. E. Olds, Reo Motor Car Co.; C. W. Churchill, Winton Co.; J. Walter Drake, Hupp Motor Car Corporation; Wm. E. Metzger, Columbia Motors Co.; John H. Dodge, Dodge Brothers; Emlen 8 Hare, Packard Motor Car Co.

The tire delegation consisted of G. M. Stadelman, chairman; P. W. Litchfield Goodyear Tire; J. C. Tuttle, R. J. Firestone, Firestone Tire; J. C. Weston, United States Tire; W. O. Rutherford, Goodrich Tire; E. H. Broadwell, Fisk Tire, and Seneca J. Lewis, Pennsylvania Tire.

The Production Committee of the Chamber, W. C. Durant, chairman, General Motors Co.; John N. Willys, Willys-Overland Co.; John F. Dodge, Dodge Brothers; Walter E. Flanders, Maxwell Motor Co.; C. C. Hanch, Studebaker Corporation, and Hugh Chalmers, Chalmers Motor Co., reported on its conference with the War Industries Board, the War Dpartment, the Railroad Administration and other governmental departments at Washington, when the supply of raw materials and transportation was discussed.

After a thorough investigation the committee was convinced that the government needs were very great and conceding that these demands should be given unquestioned priority, volunteered all possible assistance and pledged the entire resources of the industry to speeding up the war program; keeping in mind at the same time its accomplishment with as little disturbance to general business as possible.

Until the government needs are more definitely known the industry, in addition to the manufacture of airplanes, tanks, tractors, shells, mine anchors, helmets and other munitions, will apply itself to helping solve the great problem of transportation which is directly in its line. The committee is working in perfect harmony with the War Industries Board.

The traffic committee's report showed that during the first three months of 1918 there were 38,900 machines driven over the roads to dealers by eight of the larger producers, being 33 per cent. of their production. This number of driveaways relieved the railroads to the extent of about 10,000 freight cars.

The roads committee, in view of the increasing amount of inter-state travel over the highways to the relief of railroad congestion, indicated the possibility soon to some federal authority to determine the highway policy of the government, with power to direct the administration of inter-state commerce over the roads. The report showed very clearly that the 400,000 motor trucks now in service have sounded the death knell of the short line railroad, and that the increasing use of trucks was certain, especially with the building of hard surfaced roads.

A resolution was adopted urging upon the federal government and the several states the importance of adopting a highways program so that our highways may properly carry their share of the burdens of transportation.

The Commercial Vehicle Committee reported that truck makers in the N. A. C. C. increased their production of trucks more than 100 per cent. for the first three months of this year as compared with the same period of 1917.

There was a report by the National Motor Truck Committee on its work in connection with rural truck delivery and the increasing number of return loads bureaus that are being established in different parts of the country.

At this, the first gathering since the death of Col. George Pope, treasurer, formal resolutions were passed by the directors expressing grief at the loss of their associate and friend of many years and tendering their sympathy to the members of the family.

The following motor truck companies were elected to membership:

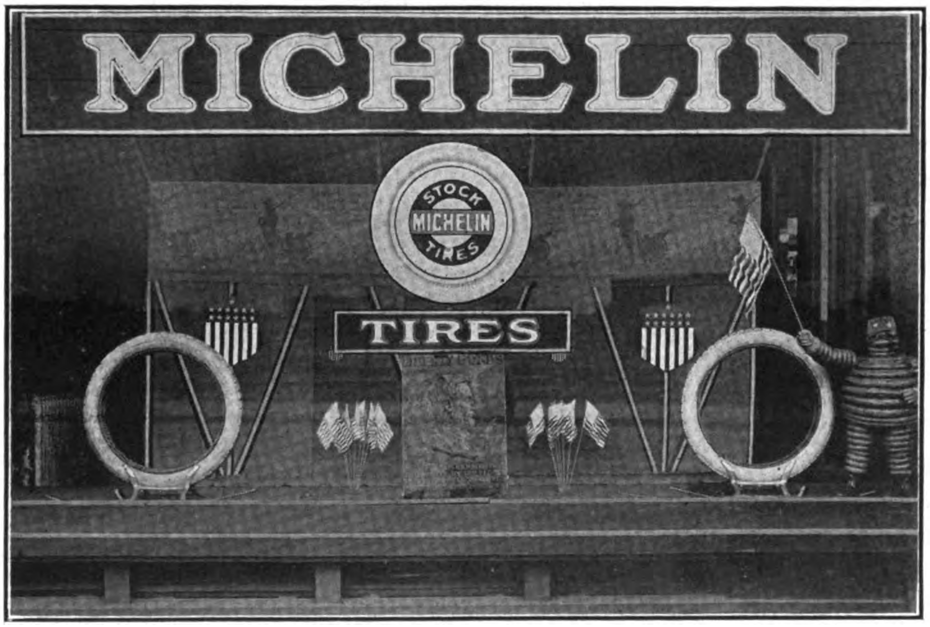
Sanford Motor Truck Co., Syracuse, N. Y.; United Motors Co., Grand Rapids, Mich.; Ward Motor Vehicle Co., Mount Vernon, N. Y., and Standard Motor Truck Co., Detroit, Mich.

MICHELIN
TIRE SERVICE

AMONG the millions of automobilists of the world there is no more familiar word than "Michelin," which is recognized as typifying a tire of quality wherever automobiles are used. Michelin tires have been for many years widely and favorably known throughout New England, but this season the demand is especially heavy because the company is able to give its trade prompt service as regards deliveries, which is very important when many sources of supply are tied up in endless transportation delays.

The Michelin factory is very fortunate in its location, which has both tide-water and rail connections with New York, so that New England shipments can be made over night by either water or rail.

The Michelin family began the manufacture of rubber in 1832. It was probably further advanced in this industry than any other concern when in 1891 Edouard Michelin produced the first pneumatic bicycle tire; in 1895 he made the first pneumatic automobile tire, and because no automobile manufacturer would use this novel equipment he built a motor vehicle that was driven in the Paris-Bordeaux race that year, thus proving the merits of the pneumatic tire.



The Display Window of the New England Michelin Branch, 901 Boylston Street, Boston, Showing the Decorations to Stimulate Liberty Bond Buying.

Practically originating the industry and pioneering its development, Michelin was foremost in tire production. Michelin tires were used very largely by French automobile builders. Michelin perfection were accepted as the best the world over. Michelin designed the first anti-skid treads, these being protected with steel-studded leather bands and were first used in the Gordon-Bennett cup race in 1905. The following year Michelin built the first demountable rims, which were used in the Grand Prix race of the Automobile Club of France.

In 1904 Michelin established a factory in London, so great was the demand in England for its tires. A second branch factory was opened at Turin, Italy, in 1906, and a third factory at Milltown, N. J., in 1907. Its sales organization was developed until in all countries where tires were sold and claim was made that the company was the largest tire manufacturer of the world.

Previous to the establishment of its American factory the company had branches in this country and was represented in all commercial centres by agencies. With the completion of the plant at Milltown the company perfected an organization with headquarters at the factory and since that time its activities in the United States have been directed through that division. Because New England for a number of years absorbed up to a third of the entire production of the American automobile industry, because it was first in automobile shows and sporting events, Michelin tires were very largely demanded in this section of the country. The New England branch at Boston was established directly following the opening of the New York branch, and since that time the company has had direct representation in Boston, and, through its sales organization, in every city and town of consequence in the New England states.

Michelin tires are claimed to be the best quality that science can produce. They have been perfected by extremely careful engineering, and this applies to both design and material. The Michelin Tire Co. does not qualify this claim. It is equally positive in its statements with reference to tire service for owners, which is afforded through a sales organization created with great care to meet every requirement of the dealers and through them the car owners. Every practical endeavor is made to strengthen this organization, to insure the cooperation of the company with the dealers, with the purpose of better serving users of Michelin tires.

The policy of the company is to have representation wherever accessories, supplies and equipment are sold, and at all garages and service stations, so that owners can be sure of obtaining tires whenever desired; to be in constant touch with all its dealers through a force of expert sales representatives, who are prepared to deal quickly with and satisfactorily determine conditions that may arise with reference to tire service. This sales organization has been created with extreme care. It consists of eight men, attached to the branch at 901 Boylston street, Boston, all of whom know Michelin tires and understand Michelin policies thoroughly.

The branch organization consists of the manager, office manager, chief adjuster and five men who systematically cover all of the six states, with accounting, order, stock and repair departments. These six men are constantly in contact with the dealers—the chief adjuster and the salesmen, and the manager personally deals with subjects that are referred to him either by the salesmen or adjuster or the factory. The greatest degree of cooperation is thus obtained. The interests of the dealers and owners are personally passed upon and determined satisfactorily. The regular visits of the salesmen to dealers are frequent, each man traveling with an automobile.

The sales policy of the company is to keep up to a standard the stock that each dealer carries, and this is done by frequent, even daily, shipments from the branch. The Milltown plant, being in New Jersey and close to New York City, is located more advantageously for stock maintenance than that of any other tire company. Tires can be sent to New York City by train or truck and shipped by boat to Boston, whence they are distributed by various parts of New England as will best serve the dealers. They can be shipped by any means, even parcel post, that will insure the quickest dispatch. The branch is always fully stocked, so that any demands can be met upon receipt of the order.

There is minimum handling necessary in distribution, for when railroad cars are available tires may be packed loose instead of crated, and they can be delivered close to the branch in Boston. The branch has a truck with which deliveries are made to Boston and its suburbs and to all shipping points. There is no need for delay in filling orders. Equally careful attention is given to handling repair work.

Reference has been made to the sales organization. The men composing it have been associated with the company for years. They have had long experience with tires and the needs of dealers and owners. The policy of the company is perhaps best reflected by the character and caliber of the men representing it.

The following brief sketches will demonstrate their experience in the tire trade:

Michelin New England Sales Organization

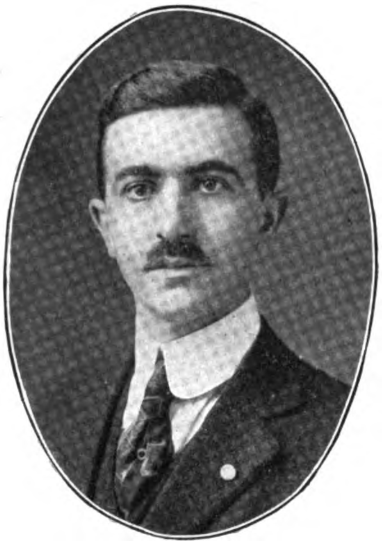
MANAGER WILLIAM L. HOGARTY.

William L. Hogarty, sales manager for the Boston branch, though young in years, is a veteran with the company. He was born in Boston and lived there all his life. He has been extremely successful as a tire salesman and has been instrumental in the development of Michelin trade in New England since he entered the employ of the company in 1909. In 1914 he was made a special representative and for a considerable period was engaged in establishing agencies in California and Arizona. He was appointed manager at Boston in 1916 and has developed what he believes to be the most productive market for Michelin tires in the country. He is prominent as a member of the Bay State Automobile Association and Boston Lodge, B. P. O. E.

Manager William L. Hogarty, Boston Branch.

OFFICE MANAGER H. E. WEST.

Office Manager H. E. West devoted himself exclusively to the branch, where he has charge of the office detail, directs the greater part of the correspondence, passes on credits and approves orders and supervises the shipping. He entered the employ of the company in March, 1911, as cashier of the Boston branch, and later was made chief clerk. In November, 1916, he was made office manager. He had a period of service at the plant and main office at Milltown to better train him for his work and get first hand knowledge of the methods and policies of the company.



Office Manager H. E. West, Boston Branch.

CHIEF ADJUSTER MILTON T. SILZER.

Chief Adjuster Milton T. Silzer has been engaged in the tire trade since he finished his education, going from his home at New Brunswick, N. J., into the stock room of the company's plant at Milltown as a junior clerk. There he worked in different departments and into the main office, obtaining experience and evidencing capability that caused him to be attached to the New York City and the Chicago branches, and in 1915 he was stationed at Boston, where the increasing business necessitated the presence of a man specially qualified for adjusting. From every point of view a Michelin man, Mr. Silzer has met the requirements of his position with satisfaction to the company, the New England dealers and their customers.

Chief Adjuster Milton T. Silzer, Boston Branch.

MORRIS M. MARPLE.

Morris M. Marple of Bridgeport, Conn., is salesman, covering Connecticut and Hampden, Hampshire, Franklin, Berkshire and part of Worcester counties—practically the western half of Massachusetts. For more than 12 years he has called on the trade in this territory, first being connected with Morgan & Wright, which concern was merged with others in the United States Tire Co. He maintains that he was the pioneer tire salesman in this section and that he

Morris M. Marple, Salesman, Connecticut and Western Massachusetts.

knows the dealers more intimately than any other man. He joined the Michelin company in October, 1908, and aside from a western trip in 1911 he has been constantly in touch with his customers.

L. M. WEENER.

Michelin trade in Rhode Island and southeastern Massachusetts is served by L. M. Weener, who completed his seventh year of association with the company April 1. He was for about a year a member of the office staff, being eventually in charge of the stock and order departments, and then he was attached to the sales organization, which work he has since continued. He has been very successful and has established a very large business in the territory. Besides selling Michelin tires he has given much attention to music, being tenor soloist in one of the leading Boston churches, and he has participated frequently in concerts of importance.

L. M. Weener, Salesman, Rhode Island and Southeastern Massachusetts.

HARRY J. COBB.

Harry J. Cobb represents the company in New Hampshire and Vermont. He has been with Michelin only a short time, although he has sold tires for nine years and is widely known to the trade. Prior to joining Michelin he worked for Morgan & Wright, and sold tires at Middlebury, Vt., where Michelin shoes and supplies were handled exclusively.

Harry J. Cobb, Salesman. Vermont and New Hampshire.

EDWARD J. FITZGIBBON.

Edward J. Fitzgibbon, who visits the dealers in Maine, the largest territory of all New England, is the youngest salesman of the staff. After working for the Michelin company two summers while finishing his education, four years ago he entered its employ regularly. He started in the shipping room and worked through different departments, constantly winning promotion, until he was made a salesman, first in the branch and later outside. When a rearrangement of territory was necessary to meet the demands of the trade he was assigned to Maine.

Edward J. Fitzgibbon, Salesman, Maine.

F. W. DOHERTY.

F. W. Doherty is essentially a Michelin man. He was born in Boston and sought employment in the manufacturing division of the Milltown plant, where in overalls and jumper in different departments he did all kinds of production work. This afforded him a splendid practical knowledge of tire making, as well as Michelin methods. His capacity was such that he was transferred eventually to the sales department, and after service at the factory and elsewhere he was attached to the Boston branch, being assigned to Maine and New Hampshire. One season he was in charge of adjustments at Boston and also made a trip to the Pacific coast as special representative. He is now visiting the trade in Boston, covering Suffolk, Norfolk, Middlesex and Worcester counties.

F. W. Doherty, Salesman, Boston and Eastern Massachusetts.

History of the Pneumatic Tire

The writer made a careful study of the pneumatic tire while abroad during the summer of 1913. He saw Thomson's original "aerial wheel" in the South Kensington Museum in London, and during his studies learned many interesting facts that may be summarized as follows:

The pneumatic tire had its origin in England, and its birth certificate will be found in the patent registered on Dec. 10, 1845, by R. W. Thomson. He describes it as a means of "perfecting the wheels of carriages and other rolling bodies." And turning to the actual test of the patent, we find a fuller description, as follows:

"The nature of my said invention consists in the application of elastic bearings round the tires of the wheels of carriages, for the purpose of lessening the power required to draw the carriages, rendering their motion easier, and diminishing the noise they make when in motion. I prefer employing for the purpose a hollow belt composed of some air and water tight material, such as caoutchouc or gutta percha, and inflating it with air, whereby the wheels will in every part of their revolution present a cushion of air to the ground or rail or track on which they run."

The invention was naturally first tried on carriages, and in the Mechanics' Magazine, Nos. 1235 to 1239, of April and May, 1847—nearly 70 years ago—we find the following announcement:

"Messrs. Whitehurst & Co., coach builders, have acquired from Mr. Thompson, the patentee of aerial wheels, the rights for applying them to all kinds of vehicles. These wheels give to carriages a gentleness of motion absolutely impossible to obtain by any sort of spring: they affectually deaden all noise from the wheels; they prevent bumping and shaking and render traction considerably more easy than with ordinary wheels, especially on bad roads.

"Messrs. Whitehurst & Co. have fitted

a brougham with aerial wheels in order that anyone wishing to try them may do so. Address 313 Oxford street."

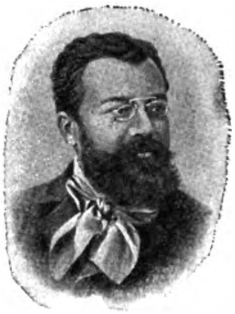
The same magazine returned several times to the subject of this remarkable invention, and in its issue of March 27, 1847, expressed astonishment at the discovery that the new kind of wheel, whose only merit they had thought to be its quietness in running, had merits still more striking.

"Careful experiments," they write, "experiments we have repeated and verified, prove incontestably that both friction and traction are considerably reduced by the use of these wheels. The experiments we refer to were made on the 17th of March, 1847, by Messrs. Whitehurst & Co., the eminent firm of coach builders, and by the inventor, Mr. William Thomson. In the experiment two stretches of road were used, one a smooth surface, while the other was covered with newly broken stones."

Then follows in detail the result of these trials, showing that the saving in traction of the patent wheels as compared with the ordinary was, on the hard road, well packed, macadamized and level, 38 per cent., and on the road covered with newly broken stones, 68 per cent. The writer concludes: "The fact is therefore established that we have here a wheel which not only makes very little noise, or, to speak correctly, is itself absolutely silent in running (for it appears that all the noise arose from the body and fittings of the carriage), but which demands far less effort in traction, and should consequently suffer less from wear and tear and last proportionately longer."

Two years later, in their issue of June 2, 1849, the same magazine again returns to the subject. "We have recently had the pleasure," they write, "of riding in a carriage fitted with these wheels. Several improvements have been made in them since we described them in an earlier issue. These improvements are of a very marked kind: the leather envelope which covered the air tube has been replaced by an envelope made of a special kind of cloth, expressly manufactured for this purpose, and on the exterior of the cloth, where it is exposed to the wear and tear of the road, a band of India rubber has been fixed.

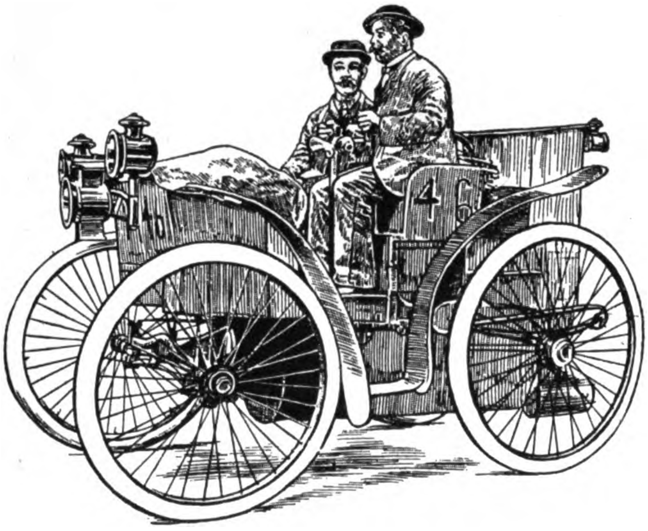
"In spite of the opinion which many might form on seeing these wheels for the first time that the traction loss would be much increased by a tire made of a soft and giving substance, we can aver that traction is without a doubt, much lessened." Then after a detailed account of further experiments, all confirming the results previously obtained, the writer concludes: "These results are entirely due to the fact that the tires are perfectly elastic as well as soft; they do not sink into loose gravel or damp soil as ordinary wheels do; in paved streets they do not retard the carriage with every shock received from the paving stones or other obstacles they have to pass over; they adapt themselves to every irregularity of surface, allowing the carriage to run on without being lifted from the ground, while the India rubber tire is restored to its original shape directly the obstacle is passed. We cherish the hope that these wheels will before long come into general use."



Edouard Michelin, "Father of the Pneumatic - Automobile Tire.

We have seen that Thomson invented the pneumatic tire in 1845, and that it at once fell into such complete oblivion that Dunlop in 1888, might well have thought he was patenting the pneumatic principle for the first time. When the pneumatic tire was originally introduced nobody cared to have it; the ordinary iron-tired carriage satisfied the needs of our ancestors, and rubber tires seemed to them a superfluous luxury.

But in 1888 a new form of locomotion had been introduced, the bicycle, and the pneumatic tire was just what was wanted to insure its perfection. It was, therefore, resurrected, first in England and afterwards, with equal success, in France.



Automobile Equipped with First Pneumatic Tire, Built by Michelin and Driven in Paris-Bordeaux Race, 1895.

But the early pneumatic tire sold by Dunlop was far from being perfect; its worst fault was that it was not detachable, so that with the first puncture it was done for. Numerous experiments were made by different makers, but the first practical pneumatic tire put on the market, a tire that was easily detached on the road by the rider, was made by Michelin, who thus earned the title in France of "Pere des Demontables"—father of detachable tires. A few years later, in 1894, his tires reached their definitive of final form, the same as are used today, both for bicycles and cars.

Michelin perfected the bicycle tire, and was also the pioneer in its application to the use of horse vehicles and automobiles. Michelin considered that having proved its worth in the service of bicycles, his tire was capable of bigger things, and that he might succeed where Thomson had failed. Michelin's first attack was made on the Paris cabs. On the 10th of February, 1896, the first cab on pneumatic tires was sent out, and so great was the success of the venture, so much appreciated was the added comfort, that by 1903 there were as many as 4500 cabs in Paris using pneumatic tires, and today it is a rare thing to see one without them.

But still Michelin was not satisfied; he sought still other conquests, and his greatest victory was to lie in widening the scope of the pneumatic tire by applying it to use on motor cars. But wonderful as was his conception, certain as seemed the advancement it was bound to give to the growing industry of motor car building, it shared the lot of all great discoveries—discouragement and apparent failure. No manufacturer would risk his car by fitting it with such apparently frail tires, but Michelin did not lose confidence; he was certain of ultimate success, and in order to give a public demonstration of what his tires could do, he had to make a car for himself. The occasion was the Paris-Bordeaux race of 1895, when Michelin was represented by a rough sort of motor car made at his own works at Clermont-Ferrand. That was the beginning. Today over half the cars in the world are fitted with Michelin tires.

The automobile of today would not have been a possibility and the automobile business could not be where it is today if this industry had fallen into the hands of pessimists—it required an optimist, one who could see visions of the future. It has attracted the most alert and skilled engineers of the world, as is amply verified by the great accomplishment in developments over a brief 15 years. Starting scarcely more than 15 years ago without either experience or precedent to guide, the automobile (horseless carriage, as we called it), such as was known at that time, was only a crude suggestion of what possibilities might lie in the idea and what was to be developed out of it.

In 1917 there were 1,903,878 automobiles manufactured in this country according to figures prepared by the N. A. C. C.

Activities of Prominent Men of the Industry

Resignations, Promotions and Other News of the Personnel of Motor Vehicle Manufacturing and Merchandising Companies and Allied Businesses

Walter J. Bemp, Head of Bemp-Robinson Co, New President of Detroit Automobile Association.

L. E. Browning has been appointed district manager of the Republic Rubber Co. for Montana, Idaho, Wyoming, Colorado, Arizona and New Mexico. His headquarters will be in Denver.

F. C. Goldsmith has become associated with the New Departure Manufacturing Co., Bristol, Conn. At present he is the company's representative in Washington, but in a short time will be stationed at the plant. He was at one time superintendent of the plant of the Haynes Automobile Co., and designer of the Haynes 12-cylinder engine.

Hal T. Boulden, Fourth Vice President and Director of Sales and Advertising, Selden Motor Sales Co.

James R. Findlater has been promoted to the post of director sales with the rank of vice president of the Briscoe Motor Co., Jackson, Mich. He was formerly general superintendent. L. E. Wilson, whose place Mr. Findlater takes, has assumed personal charge of Briscoe affairs in Chicago and territory surrounding Des Moines, Ia., forming the Brown-Wilson Motor Co.

T. W. Sieman, who has held the position of vice president and treasurer of the Union Switch and Signal Co., Swissvale, Pa., resigned as treasurer at a recent meeting of the board of directors. He will continue as vice president.

John P. Ahrens is now sales manager and vice president of the Ahrens-Fox Fire Engine Co., Cincinnati, O.

W. D. Appel, formerly doing special engineering work, is now motor engineer with the Steel Products Co., Cleveland, O.

N. W. Akimoff is now president and general manager of the Vibration Specialty Co., Harrison building, Philadelphia, Pa.

Clarence F. Jamison has been appointed assistant general manager of the Elgin Motor Car Corporation, Chicago, Ill. He was formerly president and general manager of the Supreme Motors Corporation.

N. Lincoln Green, formerly vice president and manager of the American Rubber Co., Boston, Mass., is now manager of the clothing division of the U. S. Rubber Co., Boston, Mass.

Gregory Flynn has become associated with the Edward A. Cassidy Co., Inc., New York City, as assistant to the president. He was formerly sales manager of the Rajah Auto Supply Co.

R. F. Wingrad at a meeting of the Continental directors held recently, was made assistant treasurer of the Continental Guaranty Corporation, New York. He is vice president of the Guaranty Banking Corporation, Chicago. At this meeting the usual quarterly dividend of two per cent. was declared payable April 30 to stockholders of record April 27.

Marcus T. Lothrop, for several years metallurgist and in charge of the steel and tube department of the Timken Roller Bearing Co., Canton, O., has been advanced to the post of assistant factory manager at the Timken plant. The new factory executive has been long prominent in engineering circles and was identified at one time with standard work for the Society of Automotive Engineers.

J. T. Garrity has entered the service and is now at Camp Upton, New York. He was assistant general manager of the Hartford Auto Parts Co., Hartford, Conn. Eighty per cent. of the Hartford office force of a year ago is now with the colors.

E. Le Roy Pelletier, Who Will Direct Advertising for Maxwell Motor Co., Inc.

Edward Dixon is now production manager and supervising engineer of the Oneida Motor Truck Co., Green Bay, Wis. He was formerly chief engineer and production manager of the Dayton-Dick Co., Quincy, Ill.

A. O. Dady, sales engineer of the Pfanstiehl Co., Inc., is now located at the plant, North Chicago, Ill.

E. C. Peck, for 18 years superintendent of the Cleveland Twist Drill Co., Cleveland, O., has gone to Washington to do government work in standardization and production of armament, supplies and ammunition.

C. E. Williams, Assistant Sales Manager, Selden Truck Sales Co.

Henry L. Innes, Vice President and General Manager Doble-Detroit Steam Motors Co.

J. V. Thomas is now general sales manager of the B. F. Stearns Co., Cleveland, O. Prior to this he was assistant sales manager. He was also in charge of general sales of the Moon Motor Co. before joining the Stearns company.

Frederick B. Bartniz, for 15 years division passenger agent of the Pennsylvania railroad, has joined the truck sales department of the Foss-Hughes Co., Philadelphia, distributor of Pierce-Arrow cars and trucks.

C. O. Olson has been appointed manager of the Youngstown branch of the Warner M. Bateman, Cleveland and Maxwell distributors. He was for two years auditor of the company.

V. M. Brady has taken over the business as distributor for the Prest-O-Lite products. His headquarters will be at 2700 Locust street. He was for six years St. Louis branch manager for the company.

H. J. Detterich, Advertising Manager of Bearings Service Co., Detroit, Mich.

Charles G. Frowart has been appointed manager of the McNaull Tire Sales Co. of Pennsylvania. His headquarters will be at 809 North Broad street. He was for several years connected with the Pennsylvania railroad.

H. W. Badenhousen has joined the New Era Spring and Specialty Co., Grand Rapids, Mich., as treasurer of the company. He was for the past year general manager of the Warnola Manufacturing Co., New York.

H. Jay, manager of the Philadelphia branch of the Bearings Service Co., is now at Camp Sherman, Chillicothe, O. L. H. Ward succeeds him.

M. J. Wise, former district sales manager of the Federal Motor Truck Co., Detroit, Mich., in the Middle West, has been appointed district sales manager for the Acason Motor Truck Co. for the same territory.

Charles S. Owen of Rochester, President of New York Association Automobile Accessory Jobbers.

S. Whitworth has been appointed assistant manager of the Stutz Motor Car Co., Indianapolis, Ind. He was formerly superintendent of inspection of the Nordyke & Marmon Co.

M. T. Lothrop, for the past seven years in charge of the steel and tube department of the Timken Roller Bearing Co., has been promoted to the position of assistant factory manager.

F. Winsor Eveland has been appointed sales manager of the Girard Automobile Co., 2314-16 Chestnut street. He was a number of years one of the most active members of the automobile trade in Philadelphia.

R. W. Leach has been appointed as sales manager for the Curtiss Automobile Co., Reo distributor in Wisconsin. He has been actively connected with the automobile business since 1904 and has been assistant to the sales manager of the Baker R. & L. Co., Cleveland, O.

J. Walter Drake, president of the Hupp Motor Car Co., has been elected vice president of the Wayne County War Preparedness Board.

F. C. Brown, Sales and Advertising Manager, Sanford Motor Truck Co.

George L. Brush, formerly sales manager of the Maxwell Motor, Harroun Motors and Elgin Motor Car companies of Canada, has become associated with the Olympian Motors Co., Pontiac, Mich., in the sales department.

George M. Studebaker has resigned as a member of the executive and finance committee of the Studebaker Corporation of America, Detroit, and has relinquished all his duties in connection with the operation of the business. He has not announced his future plans.

W. T. Norton, chief engineer of the Selden Motor Vehicle Co. for eight years, has resigned from the company to join the motor truck division of the United States Army and will sail for France at an early date. He retained the title of consulting engineer with the Selden company.

L. E. Wilson has become associated with the Brown, Wilson Co., Chicago and Des Moines. The company does a wholesale and retail automobile business. He was formerly sales manager of the Briscoe Motor Corporation.

S. W. Wyman, Western District Sales Manager International Harvester Co.

War Department Makes Official Liberty Engine Announcement

The mystery of the origin of the Liberty Motor and where the credit belongs for the design of the various parts has been cleared up by an official announcement made by the War Department, giving full facts, as well as description of parts of the engine. The report is as follows:

"The designs of the parts of the Liberty engine were based on the following:

"Cylinder—The designers of the cylinders for the Liberty engine followed the practise used in the German Mercedes, English Rolls Royce, French Lorraine Dietrich and Italian Isotta Fraschini before the war and during the war. The cylinders are made of steel inner shells, surrounded by pressed steel water jackets. The Packard company by long experiment had developed a method of applying these steel water jackets. The valve cages are drop forgings welded into the cylinder head. The principal departure from European practise is in the location of the holding-down flange, which is several inches above the mouth of the cylinder, and the unique method of manufacture evolved by the Ford company. The output is now approximately 1700 cylinder forgings per day.

"Camshaft and Valve Mechanism Above Cylinder Heads—The design of the above is based on the Mercedes, but was improved for automatic lubrication, without wasting oil, by the Packard Motor Car company.

"Camshaft Drive—The camshaft drive was copied almost entirely from the Hall-Scott motor; in fact, several of the gears used in the first sample engines were supplied by the Hall-Scott Motor Car company. This type of drive is used by Mercedes, Hispano-Suiza and others.

Angle of 45 Degrees.

"Angle Between Cylinders—In the Liberty the included angle between the cylinders is 45 degrees; in all other existing 12-cylinder engines it is 60 degrees. This feature is new with the Liberty engine, and was adopted for the purpose of bringing each row of cylinders nearer the vertical and closer together, so as to save width and head resistance. By the narrow angle greater strength is given to the crank case and vibration is reduced.

"Electric Generator and Ignition—A Delco ignition system is used. It was especially designed for the Liberty engine, to save weight and to meet the special conditions due to firing 12 cylinders, with an included angle of 45 degrees.

"Pistons—The pistons of the Liberty engine are of Hall-Scott design.

"Connecting Rods—Forked or straddle type connecting rods, first used on the French De Dion car and on the Cadillac motor car in this country, are used.

"Crankshaft—Crankshaft design followed the standard 12-cylinder practise, except as to oiling. Crank case follows standard practise. The 45 degree angle and the flange location on the cylinders made possible a very strong box section.

"Lubrication—The first system of lubrication followed the German practise of using one pump to keep the crankcase empty, delivering into an outside reservoir, and another pump to force oil under pressure to the main crankshaft bearings. This lubrication system also followed the German practise in allowing the overflow in the main bearings to travel out the face of the crank cheeks to a scupper, which collected this excess for crank-pin lubrication. This is very economical in the use of oil and is still the standard German practise.

"The present system is similar to the first practise, except that the oil, while under pressure, is not only fed to main bearings, but through holes inside of crank cheeks to crank pins, instead of feeding these crank pins through scuppers. The difference between the two oiling systems consists of carrying oil for the crank pins through a hole inside the crank cheek, instead of up the outside face of the crank cheek.

"Propeller hub—The Hall-Scott propeller hub design was adopted to the power of the Liberty engine.

"Water Pump—The Packard type of water pump was adapted to the Liberty.

"Carburetor—A carburetor was developed by the Zenith company for the Liberty engine.

"Bore and Stroke—The bore and stroke of the Liberty engine is 5x7 inches, the same as the Hall-Scott A-5 and A-7 engines, and as in the Hall-Scott 12-cylinder engine.

Development of the Engine.

"Remarks—The idea of developing Liberty engines of four, six, eight and 12 cylinders with the above characteristics was first thought of about May 25, 1917. The idea was developed in conference with representatives of the British and French missions May 28 to June 1, and was submitted in the form of sketches at a joint meeting of the Aircraft (Production) Board and the joint Army and Navy Technical Board June 4. The first sample was an eight-cylinder model, delivered to the Bureau of Standards July 3, 1917. The eight-cylinder model, however, was never put into production, as advices from France indicated that demands for increased power would make the eight-cylinder model obsolete before it could be produced.

"Work was then concentrated on the 12-cylinder engine, and one of the experimental engines passed the 50 hour test Aug. 25, 1917.

"After the preliminary drawings were made engineers from the leading engine builders were brought to the Bureau of Standards, where they inspected the new designs and made suggestions, most of which were incorporated in the final design. At the same time expert production men were making suggestions that would facilitate production.

"The Liberty 12-cylinder engine passed the 50 hour test, showing, as the official report of Aug. 25, 1917, records, 'that the fundamental construction is such that very satisfactory service with a long life and high order of efficiency will be given by this power plant, and that the design has passed from the experimental stage into the field of proven engines.'

"An engine committee was organized informally, consisting of engineers and production managers of the Packard, Ford, Cadillac, Lincoln, Marmon and Trego companies. This committee met at frequent intervals, and it is to this group of men that the final development of the Liberty engine is largely due."

N.A.D.A. Asked To Indorse Federal License Bill

Senator Pittman's Measure Provides for Reciprocal Privileges on All Car Registrations.

The members of the National Automobile Dealers' Association have been asked for their indorsement on the U. S. Senate bill 31 introduced by Senator Pittman of Nevada, which would require that each state shall recognize the registration plates issued by every other state.

The bill deals with the question under the head of interstate motor traffic and has many adherents, particularly since the recent numerous prosecutions against operators of cars who were passing through Pennsylvania and several other states en route with cars being driven from the factories to eastern seaboard cities for delivery. In many cases these arrests took the form of petty prosecutions, which were to be deplored, particularly at a time when the nation's system of railroad transportation is so congested that the overland delivery of automobiles is a patriotic conservation of the country's facilities to win the war.

President Vesper of the N. A. D. A. was in Washington when the bill came up and it was suggested to Senator Pittman that the bill be changed to specially cover cars en route on driveways passing through different states.

BOSTON MICHELIN BRANCH HAS NEW DELIVERY TRUCK.

The Boston branch of the Michelin Tire Co. recently placed in service a new delivery truck to meet the demands of its increasing business and to facilitate prompt deliveries to the trade in Boston and Greater Boston. Having both rail and water connections with the plant, the branch keeps its large stock of tires constantly replenished.

FRANK HOPEWELL, HEAD OF L. C. CHASE & CO., IS DEAD.

Mr. Frank Hopewell, head of the firm of L. C. Chase & Co., died on April 25, 1918, after a short illness at Pasadena, Cal., where he was spending a few weeks with his wife and daughter.

Born at Shelburne Falls, Mass., in 1857, he was one of the three sons of John and Catherine Hopewell. His father was a native of London, England, but had called America his home since he was 14 years old.

Frank Hopewell attended Springfield, Mass., high school, and the Springfield Collegiate Institute, graduating from the former in 1875 and the latter in 1879. Shortly after he began his business career in New York City and in 1881 became associated with L. C. Chase & Co., one of America's pioneer textile concerns, long identified with Sanford Mills, Holyoke Plush Co., Troy Blanket Mills and Reading Rubber Manufacturing Co.

After a period of seven years given to untiring efforts in the interests of this firm, Mr. Hopewell was admitted to partnership. At that time his brother John was senior partner of the same firm. As partner Mr. Frank Hopewell's remarkable genius strengthened the foundation of the business which was to stand the test of time and be a grand memorial to his life.

His sterling integrity and business ability have helped to place L. C. Chase & Co. in a noteworthy place in the textile field today. He was beloved and admired by all his associates, business and personal. A powerful, clear-visioned, thoroughly American type of man, Mr. Hopewell was a friend to all; big hearted and sympathetic, alert and keen.

He was elected assistant treasurer of Sanford Mills in 1887 and became treasurer in 1896, which office he held until 1915, when he resigned in favor of his nephew, Frank B. Hopewell. Besides being a director of Sanford Mills, he was also a director of Reading Rubber Manufacturing Co. and the Holyoke Plush Co., and was for several years a trustee of the Boston Five-Cent Savings Bank.

Of four nephews of the late Mr. Hopewell, three are directly connected with the L. C. Chase & Co. interests. He leaves a widow and daughter.

GREAT BRITAIN PREPARES FOR MOTOR ACTIVITY AFTER WAR.

The British government is planning to give the motor industry special attention after the war, as is indicated by the fact that the minister of reconstruction, who has 87 different committees under his direction, has authorized the formation of a branch committee for the automobile industry, and has appointed H. C. B. Underdown to act as chairman.

Mr. Underdown in consultation with the association of British Motor and Allied Manufacturers, has formed his branch committee from well known men in the automobile industry. The committee includes Bernard Caillard, who is a director of Wolseley Motors, Ltd., and is also managing director of the British Lighting and Ignition Co. J. W. Stocks, general manager of Components, Ltd., represents the motorcycle industry in the committee. Others on it are Horace Wyatt and Edward Powell. Arrangements for forming sub-committees representing the various branches of the industry are being made, so that through these channels the entire industry will be represented in the ministry of munitions.

Eddie Rickenbacher Wins His First Air Victory

Foreign Dispatches Mention Famous Race Track Star as Conqueror of Hun Aviator.

Eddie Rickenbacher, the popular and famous American speedway pilot, is credited in the cables with having won his first aerial victory, having shot down a Hun birdman in a recent encounter over the German lines.

Few of the American drivers of fast motor cars enjoyed the popularity among the public and the racing fraternity that was held by Rickenbacher. He was always looked upon as a dangerous antagonist on the tracks, owing to his absolute fearlessness as a driver, and when he went abroad last year his friends believed he would not content himself in the position of official driver for General Pershing, despite the honor it carried with it. In this belief they were vindicated, as it was not long after Rickenbacher had reached France that dispatches reported his enlistment in the American Flying Corps. Nothing further was heard of his activities for several months until the brief dispatch of his encounter with the Hun airman and the latter's defeat and death after a long race through the air at a faster speed than Rickenbacher ever attained on a Speedway.

License Plates on Drive-Away Cars

Different States Recognize Duplicate Dealer's Plates, Which May Be Used Repeatedly.

Dealers who have had difficulties with local officials in various places over the movement of strings of cars in "drive-aways" from the factories, can avoid trouble over license plates by purchasing a sufficient number of duplicates of their dealer's license plates to attach to each car in the string and using these for each successive drive-away during the year.

In a letter to the National Automobile Chamber of Commerce, Francis M. Hugo, secretary of state for New York, writes:

"The motor vehicle law of this state does not authorize this office either to grant privileges (for running cars through the state under their own power) or to issue any transit tags. The proper way to do is to get out extra sets of dealers' plates enough to cover all shipments of cars to be used on the cars while going through the state. After the cars are delivered at their desination the plates can be shipped back to the manufacturer and used for next lots.

"Most of the dealers have acquiesced in this suggestion and have found it very successful, and it would seem to me to meet the situation.

"If there is anything further I can do to relieve the situation I shall be only too glad to do it."

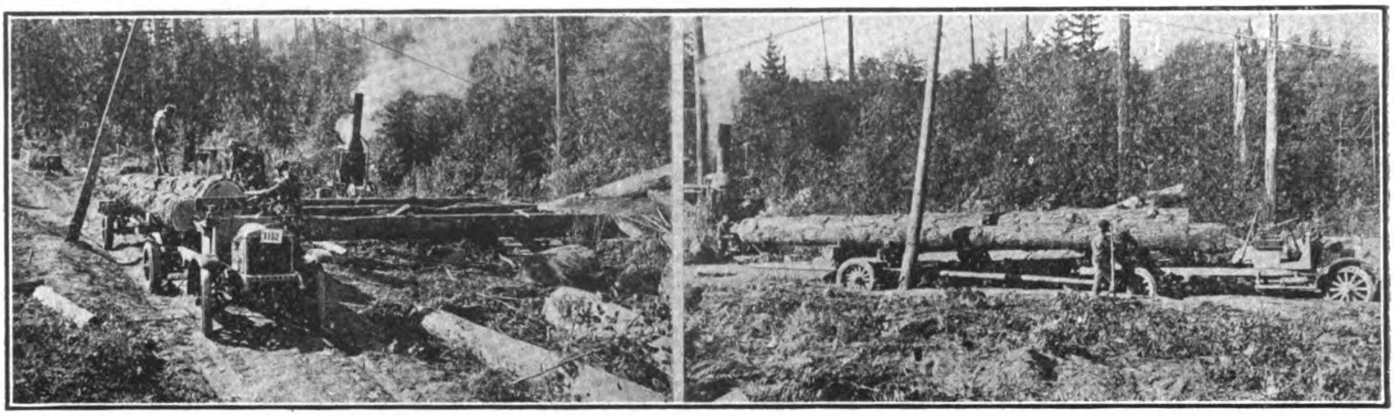
Under the reciprocity provisions of the different state laws these dealers' plates will be recognized and the strings of cars permitted to pass through. A fee of $5 is charged for each set of duplicate plates for one car. Fifty sets probably would suffice for all drive-aways made by one dealer in the year.

The New York state law provides for the issuance of "such additional sets, not exceeding four, for which he (the manufacturer or dealer) shall have paid the fees provided * * * but the secretary of state may limit the total number of dealers' plates to be issued to any particular dealer in excess of five."

It is evidently not the intention of the secretary of state to take advantage of this limitation.

PRESIDENT KETTERING SPEAKS ON ENGINE DEVELOPMENT.

President C. F. Kettering of the S. A. E. in a lecture on the "Automobile Power Plant" before the American Institute of Electrical Engineers, the American Society of Mechanical Engineers and the Western Society of Engineers, predicted that the future internal combustion engine will be encased in an asbestos jacket in much the same way as a steam engine, and that better thermal efficiency will be realized by placing a by-pass in the water outlet operated in conjunction with the throttle lever.



Cutting Isolated Timber: At Left, Loading a Truck and Semi-Trailer with Heavy Logs at Portable Plant; at Right, a Load of Valuable Logs That Would Be Worthless if Other Means of Cutting and Haulage Were Employed.

HAPPENINGS AMONG THE CAR AND PARTS MAKERS

What Several of the Leading Manufacturers in the Motor Vehicle Industry and Allied Lines Are Doing or Have Under Consideration

The Harroun Motors Corporation, Wayne, Mich., has announced a production of from 20 to 30 cars daily. The company plans to produce 600 cars in June. About 500 men are employed and the company expects to double this number within the next 30 days to take care of the 155 m. m. shell contract received from the government.

The Monarch Tractor Co., Watertown, Wis., will erect a brick and steel addition to its machine and assembling shop. The foundry will be extended also.

The Long Manufacturing Co., Detroit, Mich., has commenced the work on an addition to its plant. The new building will be 66 by 125 feet and will be ready in about two months.

The Aborn Steel Co., Inc., New York, N. Y., has opened an office in the Marine Bank building, Buffalo, N. Y. It will be in charge of D. J. Mahoney, district manager for the Aborn company and the Century Steel Works.

The Elgin Motor Car Corporation, Chicago, Ill., is putting on the market a new four-passenger model styled Military Scout. The body is of the straight line type with beveled edge and full size rear fenders. The car sells for $1195, f. o. b. Chicago.

The Paige-Detroit Motor Car Co., Detroit, Mich., will add two units to its executive building. These will add 50 per cent. to the present space and will provide for the requirements of the new Paige truck department officials.

The Wisconsin Gear and Axle Co., Milwaukee, Wis., is now building the first unit of its plant. It will manufacture automotive gears and axles, and specialize in a safety castor front axle for motor vehicles. The following officers have been elected: President, Jacob Schamer; vice president and general manager, C. E. Frederickson; secretary and treasurer, H. G. Bruhuke; directors, Herman Noll, George Gluick, M. M. Weber, Charles Evers and the officers.

The Marwin Motor Truck Co., Chicago, Ill., has purchased the plant of the Skidd Manufacturing Co., Kenosha, Wis. The buildings are being made ready for production. The company was recently organized with a capital stock of $1,000,000 to manufacture trucks and tractors.

The Baker-Fisk Co., Detroit, Mich., has been formed to distribute the Jordan and Saxon cars. C. E. Baker will handle the retail end of the business and S. C. Fisk will take care of the wholesale distribution.

The Advance Rumely Co., Battle Creek, Mich., decided at a recent meeting of the officials that during 1918, 3000 oil pulled tractors are to be made at the Michigan plant. The force of 550 men will be more than doubled. During 1917 the plant turned out nearly $800,000 worth of repair work as against $600,000 in 1916. The plant also does special work for the United States Shipping Board.

Dodge Brothers, Detroit, Mich., will increase the price of its touring car $100. Other Dodge models will cost $75 more. Demand is on the increase and at no time during the last few months has production been able to keep up with the demand from the distributors. The demand for the commercial car is just as great as for the passenger cars.

The Lapeer Tractor Co., Lapeer, Mich., is projecting the erection of a large new plant. The company has orders on hand amounting to over $40,000.

The Chevrolet Motor Co., which operates plants in Flint, Oakland, Cal.; Tarrytown, N. Y., and New York City, has decided, as a war saving measure, to concentrate manufacturing in the East to the Tarrytown plant. The New York plant will probably be used for war work or placed at the disposal of the government.

The Fulton Motor Truck Co., Farmingdale, L. I., N. Y., which manufactures the Fulton truck, has added a body building department. This will make possible increased production and more prompt deliveries. This addition was made necessary to meet the requirements of the rapidly growing business.

The Wisconsin Duplex Auto Co., Oshkosh, Wis., is retooling and equipping the former plant of the J. L. Clark Carriage Co. and will start its regular production of chassis by July 1. The design has been perfected and work on the preparation of jigs, dies and special machinery is now under way.

The Dearborn Truck Co., Chicago, Ill., has purchased a three-story brick building at a cost of $105,000. The capacity of the old plant will be quadrupled. A private switch track is included.

The Great Lakes Rubber Co. will establish a plant at Milwaukee, Wis. The company was organized with a capital stock of $100,000 by Donald C. Barbee, general manager of the Badger Belt and Rubber Co., Milwaukee. Five acres of land have been purchased in Cudahy, a suburb, and the first unit of the new plant will afford about 45,000 square feet of floor space.

The Bergie National Spark Plug Co., New York City, has opened an eastern sales branch in the Buick building, 1737 Broadway. R. M. Hodes is in charge.

The Racine Auto Tire Co., Racine, Wis., is distributing mileage record booklets, containing a small table to be filled out, by which a car owner can tell the record of his tires.

Gary Motor Truck Co., Gary, Ind., has increased its capital to $175,000 by the addition of $50,000 of new common and preferred stock in equal amounts. William H. O'Donnell is president of the company. About two years ago the company started with a capital stock of $50,000 and has been growing ever since.

The Vim Motor Co., Sandusky, O., has increased its capital and bought the plant of the Sandusky Forge Co. The company has progressed from a capital of $60,000 to $400,000, the amount of its new stock.

The Lumen Bearing Co., Buffalo, N. Y., at a recent dinner given in Detroit showed moving pictures of its plant and stereopticon slides illustrated recent micrographic experiments and determinations. Executives of motor car plants were present.

The Studebaker Corporation, South Bend., Ind., has promoted the following men: R. H. Williams, formerly manager of the Detroit branch, has been made assistant director of sales, with headquarters at South Bend, Ind. L. A. Keller has been made manager of branches. George L. Willman becomes manager of the Chicago wholesale branch, while J. E. Grady, general sales manager of the Canadian factory, takes over the management of the Detroit branch in addition, with S. A. MacGonigal as assistant. A. J. Brechtel has been promoted to the management of the Des Moines wholesale branch, while Perry E. Ewell has been appointed assistant manager of the Cleveland district of the sales organization.

The Fafnir Bearing Co., New Britain, Conn., manufacturers of ball bearings, are preparing to issue a house organ, the first number of which will soon be off the press. It will be entitled "The Dragon."

The Timken-Detroit Axle Co. has made a number of changes in its executive organization following the resignation of Eugene W. Lewis, vice president and director of the company. He severed his connection with the company to devote his entire time to government work during the war. A. R. Demory, a vice president of the company, has been elected general manager, and Frederick C. Gilbert, formerly secretary, has been elected vice president, in charge of sales and advertising, and C. W. Dickerson, the treasurer, has also been elected secretary.

The Nash Motors Co., Kenosha, Wis., has announced that the price of Nash passenger cars and trucks will be advanced, the new schedules becoming effective June 1 and superseding those set Aug. 1, 1917, which had been in force since that time.

The prices of Nash passenger cars and trucks, which will be effective June 1, will be as follows:

PASSENGER CARS.	
Model 681—5-passenger touring car	$1395
Model 682—7-passenger touring car	1545
Model 683—4-passenger roadster...	1395
Model 684—6-passenger sedan......	2085
Model 685—4-passenger coupe......	2085
TRUCKS.	
Model 2017—One-ton chassis.......	$1595
Model 3017—Two-ton chassis......	2075
Model 4017—Nash Quad chassis...	3250

These prices are F. O. B. Kenosha and do not include war tax.

The coupe and seven-passenger touring car are new models in the Nash line and the prices given above do not represent an increase on these cars. The price of the Nash Quad chassis at $3250 remains the same as heretofore.

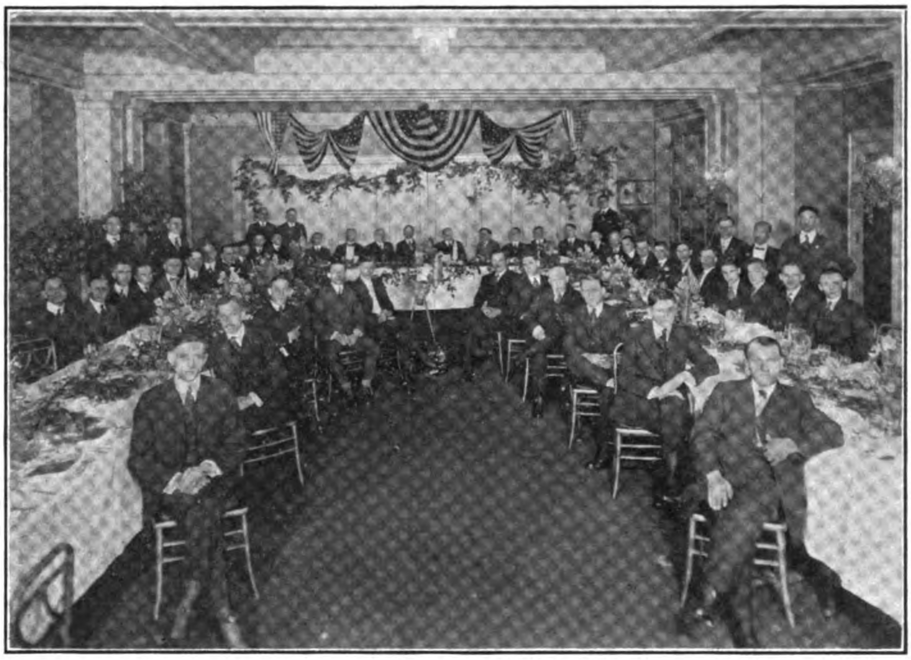
The Stanley Motor Carriage Co., Newton, Mass., has appointed the following as distributors of the Stanley steam car: The Howard Automobile Co., 250 Boulevard, New Haven, Conn.; the Electrical Construction Co., Racine, Wis.; the Millen Motor Sales Co. of Millen, Ga., and the Northern Garage Co., Northern avenue, Avondale, Cincinnati, O.

The Montreal Automobile Trade Association, Montreal, Canada, at a recent meeting of the board of directors decided to suspend active operations until after the war.

The Tractor Motor Co., Boyne City, Mich., is now ready to produce engines under the Field Motor Co. patents.

The Boone Tire and Rubber Co., Sycamore, Ill., will place its No. 2 plant at Chippewa Falls, Wis., in operation on a regular production. The plant consists of a main building, 83 by 260 feet, with 37,000 square feet of floor space, and will employ 350 men. The daily output at the start will be 750 tires and tubes and 12,000 pairs of rubber heels and soles. The company has invested $85,000 in the new plant.

The Universal Machinery Co., Milwaukee, Wis., is planning to build a complete new plant costing about $125,000. The first units to be built will be a machine shop, 150 by 300 feet; foundry, 90 by 160 feet; power house, 40 by 60 feet, and auxiliary structures. The company manufactures lathes, boring mills, drill presses.



War Time Dinner of the Russel Motor Axle Co. of Detroit, Which Was Attended by the Directors, Officers, Heads of Departments, Assistants, Shop Clerks and Office Employees.

The Comet Automobile Co., Decatur, Ill., has offered its new building to the business men of the city for a "Made-in-Decatur" show. The various manufacturers of Decatur will make an exhibition of their products the last of this month. The main building is 600 feet long. As soon as the show is over the machinery will be installed. The plant will be in full operation by June.

The Studebaker Corporation, South Bend, Ind., at a regular meeting of the board of directors, declared the regular quarterly dividend of 1¾ per cent. on preferred stock and one per cent. on common stock. This will be payable June 1 to stockholders of record of May 20 at the close of the business.

The Muskegon Engine Co., Muskegon, Mich., is manufacturing a new two-ton truck, styled Model 20. This has a Continental four-cylinder, 4⅛x5¼ inch engine, Eisemann ignition, Stewart carburetor, Bower bearings and Torbensen rear axles. The wheelbase is 144 inches, the weight of the chassis 4080 pounds and standard equipment includes front fenders, running board and three oil lamps. The chassis price, including lazy back seat, is $2145, and the cab with windshield and standard stake body will cost $215 extra.

The Minerva Engine Co., Cleveland, O., has moved its general offices to the Vickers building, East 66th street and Euclid avenue.

The Harley-Davidson Motor Co., Milwaukee, Wis., which in the past has made several commercial models, including a 600-pound side van and a 400-pound three-tracker truck, has decided to concentrate in the future on a 400-pound side van. The motorcycle part will be identical with the Harley-Davidson motorcycle except that the engine compression will be slightly lower.

The Commerce Motor Car Co., Detroit, Mich., is putting on the market a one-ton truck. The chassis will sell for $1340 and is equipped with Bijur starting and lighting and Dixie magneto ignition, with generator and magneto driven in tandem. There is a choice of three types of bodies: Open express, to sell at $1375; open express with top, $1450; stake body, $1490.

The Chief Motor Co., a Canadian corporation, capitalized at $1,000,000, has purchased the Port Huron plant of the Montor Motor Co. and will manufacture engines for farm tractors. J. H. Erd and H. S. Erd, formerly of the Erd Motor Co., are the principal officials.

New York Has New Headlight Law

Secretary of State Will Have Power To Name Such Devices as Meet Requirments from Tests

Governor Whitman of New York on May 8 signed the new headlight law recently enacted by the Legislature of that state and it will immediately be put into effect.

This law was designed to eliminate the confusion resulting from the inability of motorists to comply with the old law satisfactorily and was drawn following a lengthy conference in the office of Secretary of State Hugo, which was attended by headlight experts and others. The law confers on the secretary of state the authority to officially name such headlights as come within the requirements following tests before technical experts or boards.

The new law states that any person or concern may submit to the secretary of state a device for controlling the front lights of motor vehicles to the end that this device shall then be submitted to a test by the United States Bureau of Standards or any qualified testing laboratory not interested in any way in lamps or headlighting apparatus, or to a disinterested, qualified technical expert or experts from the physical laboratory of a university or technical school in this state. The fee will be $50. The secretary of state is also given the power to test out the device on the road as he may see fit.

Following a notice from the bureau, laboratory or technical expert testing the device to the effect that it complies with the provisions of the law and suggesting the maximum candle power to be used with it, Secretary Hugo may then issue a certificate to the effect that the test has been made and that the device meets with the law and prescribing the candle power to be used. Those dissatisfied with the results of the test are given the right of appeal to the United States Bureau of Standards, whose decision shall be final. Among the other new provisions of the law are these: Every motor vehicle when running shall display from one-half hour after sunset to one-half hour before sunrise at least two lighted lamps in front of approximately equal power, but not exceeding 24 candle power unless a greater power has been prescribed under one of the subdivisions of the new law. The lighted lamp in the rear must be such that the numbers of the license plate are legible at least 50 feet away.

The front lights must be so adjusted and operated as to avoid dangerous glare or dazzle, and so that no dazzling light projected to the left of the axis of the vehicle when measured 75 feet or more ahead of the lamps shall rise above 42 inches on the level service on which the vehicle stands. There must also be sufficient side light to reveal any object 10 feet to both sides of a car at a point 10 feet ahead of the lamps. All this, however, which has been a puzzle to 99 out of every 100 motorists, will be taken care of in the tests. Lists will be furnished by Secretary Hugo, making public, as is the case in other states, of lights that come within New York's law.

The law further states that front lights are to be visible at least 250 feet in the direction in which the car is going, and when it is on a highway not well enough lighted to reveal any object straight ahead 200 feet away, such front lights shall be of sufficient intensity to reveal that object at least 200 feet away. This, however, is not to apply to motor trucks, described in sub-division four of the law.

On motor trucks of two tons carrying capacity or over, so constructed that they cannot exceed 15 miles an hour, the lights shall be visible at least 200 feet, and where the vehicle is on a highway not so lighted as to reveal any object straight ahead 200 feet, the front lights shall be sufficient to disclose any object 75 feet ahead. Motor vehicles when standing must display two lights in front and a red one in the rear, visible at least 100 feet distant.

J. H. FAW, INC., MOVES TO NEW OFFICE AND SALESROOM.

J. H. Faw, Inc., New York City, have moved to 37 Warren street, occupying one entire loft at that address. The new quarters provide ample accommodation not only for the general office and salesroom, but an exceedingly light and commodious shipping room. A systematization of their various lines enables them to rapidly and efficiently execute such orders as are not placed with their factories for direct shipment.

Many both in and out of the trade will miss from its accustomed place the overhanging sign of J. H. Faw, Inc., which for seven years has marked the entrance to 41 Warren street, New York City. Comparatively small in size, it was so fortunately located as to be visible from City Hall Park on the east and the "L" on the west and to one at all acquainted with the general locality, city street signs were unnecessary.

The removal prevents a replacement of the familiar sign, but J. H. Faw and Warren street are evidently unseparable, as the new location is but a few doors east.

HEAVY OVER DEMAND FOR PASSENGER CARS.

"I have been searching everywhere for the fellow who said the automobile business was going to be slow this spring, but so far I have been unable to locate anyone who will now own up to the authorship of that statement," exclaimed F. H. Akers, sales manager of the Reo Motor Car Co., on his return from a visit to various Reo distributors throughout the country.

"Our sales records show that business has opened up this year about two weeks earlier than usual; and that despite one of the most severe winters we have ever had. Orders are rolling in from everywhere and if we could make them and then ship them, this would be our banner year.

"Nor is this condition confined to the Reo product. In all fairness I must say that practically all reputable makers are enjoying the same demand for their product—in fact there is a general and a very heavy over demand.

"Of course prices are higher all the way along the line, but, on the other hand, everybody's earning capacity and profits are greater.

"Not only that, but the need is greater. Presumably nobody buys an automobile and especially at this time of year, for pleasure. Fully 99 per cent. of the purchases are made under the spur of necessity.

"In some cases perhaps buyers are simply protecting themselves against further advances in price which they realize must come; and others are trying to get in ahead of the spring rush. But in all cases the indications are that necessity is the principal incentive and that the demand is not confined to any one section of the country.

Regal Motor Car Co. Assets to Be Sold

The Creditors Decide to Offer the Plant For Sale at Public Auction.

At a meeting of the creditors of the Regal Motor Car Co., which was called by the Security Trust Co. of Detroit, it was decided to discontinue operations and sell the plant at public auction.

On Feb. 12 last the Security Trust Co., acting as receivers, took over the plant, and since that time has continued operations for repairs and parts, but no car production has been thought advisable. Assets of the plant as a going concern have been appraised at $1,155,710.13, with liabilities of $631,990, of which $356,454 is secured by a trust mortgage.

H. W. BADENHAUSEN JOINS NEW ERA SPRING AND SPECIALTY CO.

H. W. Badenhausen, who for the past year was general manager of the Warnola Manufacturing Co. in New York City, has joined the New Era Spring and Specialty Co., Grand Rapids, Mich. He is general manager and treasurer of the company.

He was formerly connected with the company as eastern representative, with headquarters at New York.

NEW ELGIN SIX MODEL WITH DISTINCTIVE DESIGN.

The Elgin Motor Car Corporation, Chicago, is building a new four-passenger model, which will be known as the "Military Scout." While it is of similar lines to the sport type and is classed as a four-passenger car, it will seat five persons comfortably.

The creation of this new model was the result of the wonderful record made by the Elgin Six "War Scout," a standard touring model, which made a run of 6202 miles from Chicago to San Francisco and return, with hood, clutch and transmission sealed during the entire journey. The body is of distinctive design, straight-line type, with beveled edge and full size rear fenders. It sells for $1195 f. o. b. Chicago.

Big Increase in Production of Gasoline

Gain of 32 Per Cent. in Output of Motor Car Fuel During 1917, or 7,478,630 Gallons a Day.

Last year there was a 32 per cent. increase in the production of gasoline, or nearly 2,000,000 gallons per day more than in the previous year, according to the figures of the Bureau of Mines. The actual daily increase in gallons over 1916 was 1,853,306. That the increase in production is steadily gaining and had been gaining during 1917 is indicated by the fact that the production of gasoline during the last six months of year was much greater than during first six months.

The total gasoline production during 1917 was 2,729,712,033 gallons, or on a basis of 355 working days, a daily production of 7,478,630 gallons. In 1916 the daily production was 5,625,357 gallons. The total increase of gasoline produced in 1917 as compared with 1916 was 2,058,880,596 gallons.

While the production of gasoline was increasing 22 per cent. the production of kerosene increased but 7½ per cent. The total quantity of kerosene produced in 1917 was 1,566,015,103 gallons, as compared with 1,455,495,732 gallons in 1916, a net increase of 110,519,731 gallons.

The condition of the crude oil situation throughout the country is indicated by a 22 per cent. gain in production during 1917. For the year the production was 301,319,318 barrels of 42 gallons each, as compared with 246,992,596 barrels in 1916, an increase of 54,326,727 barrels.

SANFORD TRUCK AGENCY IN WESTERN PENNSYLVANIA.

The Sanford Motor Truck Co. of Syracuse, N. Y., has closed the agency for the sale of Sanford trucks in Western Pennsylvania with the Painter-Dunn Co., Centre and Millvale avenues, Pittsburgh, Pa. The Pittsburgh house is one of the leading Overland dealers.

Henry L. Innes New General Manager of Doble

Former Assistant to W. C. Durant in General Motors Will Have Charge of Production.

Following the reorganization of the Doble-Detroit Steam Motors Co. and its absorption of the General Engineering Co., comes the announcement of the appointment of Henry L. Innes as vice president and general manager. Mr. Innes recently left his position as factory manager of the Chevrolet plant at Flint to become assistant general manager of the General Motors Co. of New York, in active charge of production.

Mr. Innes will have the responsibility of production and his appointment will be regarded in motor circles as strong evidence that the Doble-Detroit Steam Motors Co. is preparing to forge ahead and occupy the position in the industry that the admirers of the Abner Doble principles of automotive transportation believe is warranted.

Mr. Innes gained his reputation in the motor car industry through his association with Dodge Brothers, the Chevrolet and the General Motors. But he had a long and arduous training that illustrates the thoroughness of the man. His father was one of the old time lake captains and for 40 years was commodore of the Michigan Central's car ferry fleet. Young Innes followed in his father's footsteps. At 19 he possessed a master's papers. He became first officer of the old Northwest and shortly thereafter succeeded his father as commodore of the Michigan Central's car ferry fleet.

About this time Mr. Innes decided he ought to know something about steam engines, so he left his job, took up work in the engine room and won his chief engineer's papers.

For five years he was in Mexico, where he built and equipped a ship yard for ex-Senator William A. Clark and constructed vessels for the Mexican rivers. About 15 years ago Mr. Innes became interested in the internal combustion engine. He went to work in the shop of the Crescent Motor Co. of Cincinnati, in order to learn the gasoline engine. Then he went to the Hastings Motor Shaft Co. of Hastings, Mich., manufacturers of motor shafts, where he worked up to the job of superintendent. The next step in his progress was taken to learn all about axles and was a job with the Lewis Spring and Axle Co. of Jackson. Mr. Innes had long been a friend of John and Horace Dodge and finally joined the forces of Dodge Brothers, with whom he remained four years. He conducted all the tests and experiments on the first Dodge car. His achievement in this field attracted the attention of William C. Durant and he was won over to the Chevrolet at Flint, where he became factory manager. His success was so great that it was decided to move him to New York, where he was to be actively responsible for production of the General Motors. While in Flint he was president of the Manufacturers' Association of that city.

Mr. Innes' connection with the Doble-Detroit came about accidentally. He had long been familiar with steam as a motive power in all its phases and was greatly interested in the Doble-Detroit. While in Detroit recently, on his way to New York to assume his new position with the General Motors, he took advantage of his brief visit to ride in the Doble-Detroit car. A casual trip up and down the boulevard became an all-day whirl and his interest grew so profound that the next steps in his decision to join forces with the Doble-Detroit were made more or less inevitable. Mr. Innes will take up active work in his new position within a few days.

New Maryland Law Is Now Being Enforced

Number of Operators Sent to Jail and Very Heavy Fines Imposed for Violations.

Automobile Commissioner Baughman of Maryland is insisting on the enforcement of the new automobile law passed at the last session of the Legislature and which went into effect on April 1.

Recently three automobile drivers were sentenced to various terms in the House of Correction and six had their licenses revoked and fines of from $20 to $100 were imposed on a dozen other car operators.

Under this new law, which is now in effect, the offense of driving a car without knowledge of the owner, carries with it an imprisonment sentence of from 30 days to one year. A man caught driving a car while under the influence of liquor can be fined as much as $100 and also placed in the House of Correction for a term. Reckless driving or exceeding the speed limit under this new law carries with it heavy penalties, and the commissioner says he proposes to see that this law is strictly enforced in every section of the state.

J. A. SCHLECHT RE-ELECTED HEAD OF ST. LOUIS ASSOCIATION.

The St. Louis Automobile Manufacturers and Dealers' Association has reelected Joseph A. Schlecht of the Mound City Buggy and Auto Co. as its president. The other officers follow: Vice president, P. H. Brockman, De Luxe Auto Co.; treasurer, H. L. Schnure, Velie Automobile Co.; directors, F. W. A. Vesper, Vesper-Buick Automobile Co.; F. R. Tate, Tate-Gillham Motor Car Co.; I. G. McNiece, Cadillac Automobile Co.; W. L. Johnson, Johnson Automobile Co.; W. S. Roberts, J. I. Case T. M. Co., and C. R. Frampton, Hudson-Phillips Motor Car Co.

ACCESSORIES
AND
EQUIPMENT

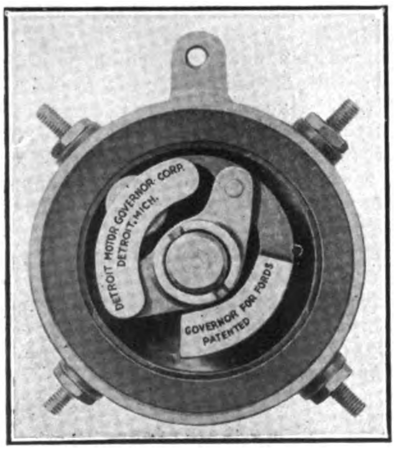
DETROIT MOTOR GOVERNOR.

There is an ever increasing need for a simple, reliable method of governing the speed of the Ford engine. As the Ford car when used for business is usually driven by an operator instead of the owner, it becomes necessary to put some check on the average driver's tendency to over speed the engine.

The governor takes the place of the roller or brush in the Ford timer case, where it performs both the function of the brush and a speed regulator. It does not alter the mechanism, but automatically cuts out the distributor by centrifugal action if the engine is running in access of 1400 to 1600 revolutions per minute. As the engine is slowed the governor releases the brush and it starts back to work automatically.

It is the first low priced governor to be placed on the market.

Marketed by the Forthe Detroit Motor Governor Co., Detroit, Mich. Price, .$5.


DETROIT MOTOR GOVERNOR CORP. DETROIT, MICH.
GOVERNOR FOR FORDS PATENTED

PANVAR CAR REFINISH.

Many car owners would like to have the finish of their car restored, but usually permit it to remain in its shabby condition, despite the effect this has on its value, because they do not care to stand the expense of having the car sent to a regular automobile painter or because they are apprehensive of the results should they undertake the job themselves. It is true that with ordinary methods the average person would not obtain positive results in refinishing a car, a fact which has led one concern to market a finish that can be handled with excellent results by the amateur. This preparation is called Panvar and it dries over night and is quickly applied, is self-leveling (which means that it will dry out evenly and not show brush marks), dries with a hard, glossy finish within six to eight hours, and the makers claim will not crack, creep or peel or turn white from the effects of water or steam.

AUTOMOBILE REFINISHER
ONE QUART
THE LASTING FINISH
Panvar
TRADE MARK
NOT A BODY POLISH
THE PANVAR COMPANY Inc. PHILADELPHIA PA

The Panvar Co., Bulletin Bldg., Philadelphia, Pa. Write for prices.

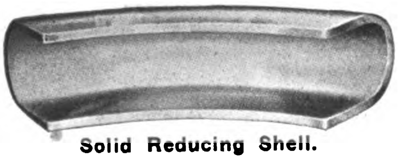
SOLID REDUCING SHELLS.

The solid reducing shell enables the operator to use his larger sectional molds for vulcanizing repairs on small casing whenever the small molds are busy.

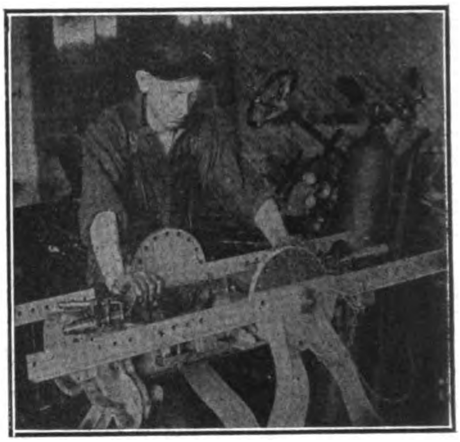
By fitting a shell into a large mold the size of the mold cavity is machine finished to a minute degree of accuracy and the shell is in perfect contact at all points. This makes as good a cure as by a direct contact of the tire with the mold.

These shells enable the repairman who has various sizes of molds to double the amount of vulcanizing on small size tires at a nominal expense.

The Williams Foundry and Machine Co., Akron, O. Write for prices and literature.



Solid Reducing Shell.



CONTINENTAL MOTOR STAND.

This stand is universal handling the Ford engine or any three-point suspension engine from any kind of a passenger car, truck or tractor engine. The stand is portable and can be moved to adjust the engine in any position desired.

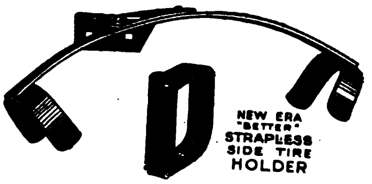
The engine is fitted to the stand in the same position that it is fitted to the chassis and all bolts and clamps necessary are furnished as complete equipment with the stand. It is adjustable in width from nothing to 30 inches. Has a five-inch adjustment in height and can be locked in on over 25 different positions. The stand itself is 39 inches high, occupies a floor space of 29 inches by 36 inches and the shipping weight is 290 pounds.

Manufactured by the Continental Auto Parts Co., Knightstown, Ind. Write for prices and literature.

NEW ERA STRAPLESS TIRE HOLDER.

A side tire holder of strap steel that requires no straps. A locking device is part of the tire holder, as also are the tire supports. A self-expanding carrying rim can be furnished where demountable rims are not used.

New Era Spring and Specialty Co., Grand Rapids, Mich. Price, $2 single, $3 double and $1.50 for the carrying rim.



MARVEL SPARK PLUG INTENSIFIER.

A device which overcomes ignition trouble on internal combustion engines. The spark that is produced at the point of the spark plug when the spark gap is in series with the spark plug, results in a fatter, stronger, better spark than would otherwise be produced. The spark produced with the gap permits the use of a leaner mixture, that not only saves gasoline, but also cuts down carbon deposits in the cylinders. This is because carbon comes largely from the partially burned gasoline, resulting from the use of too rich a mixture.

Another advantage is that with the spark gap all plugs give the same intense spark no matter if they are old or new, good or bad, dirty or clean, broken or whole.

Marvel Spark Gaps are adjustable. The correct adjustment will make a spark plug fire perfectly. The slot screw is easy to adjust and if the ignition is weak a narrow gap only is necessary.

Marketed by Wm. Simpson, 603 Insurance Exchange Bldg., Chicago, Ill. Price, 35 cents each. Write for literature.

FORD WORM STEERING GEAR.

Many accidents are caused by failure of the steering gear, or because of the fact that the front wheels do not respond to the action of the steering wheel. For this reason many high class automobiles are fitted with irreversible worm steering gears, a type of steering gear that has been favorably received by engineers. The Ford car is not fitted with this type, however, and to satisfy those who desire a worm and wheel type the Sprague Irreversible Worm Steering Gear has been placed upon the market.

The Sprague gear is bolted to the engine and is strongly made. Ample latitude for adjustment is allowed and the manufacturers claim to return the purchase money in case of dissatisfaction.

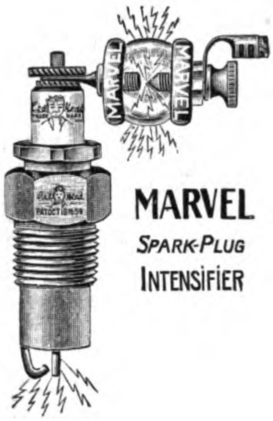
Manufactured by E. H. Sprague Manufacturing Co., Omaha, Neb. Write for prices and literature.

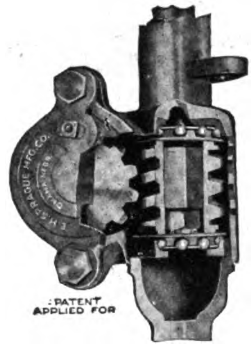
FULTON MUD HOOKS.

When the car is stuck in the sand or mud there comes the need of a great lift, for which purpose the "mud hook" is designed.

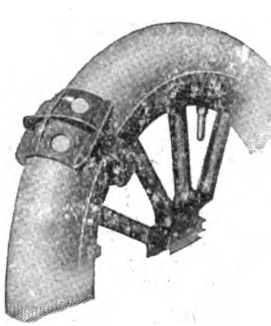
It is made of the best malleable iron and has a heavy stout web strap that is drawn tightly around the wheel rim and holds the hook securely to the casing. It cannot be unloosened until it is unfastened and it does not damage the rubber. With a mud hook on each wheel the car will pull out under its own power —the flanges of the hook producing a pull that forces the car ahead. It will lift the car out and it does not dig in or grind, there being no danger of stripping the gears.

The Fulton Co. Milwaukee, Wis. Sizes 3½ inches, 4 inches and 5 inches, to fit over casings of corresponding sizes. Price per set of two, $1.90. Extra web straps, per set of 2, 60 cents.

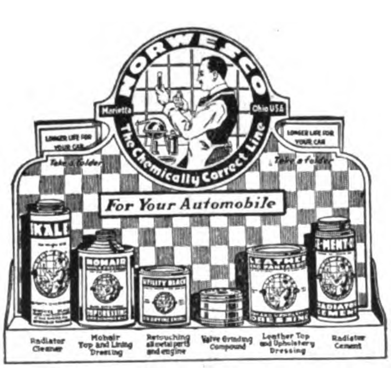


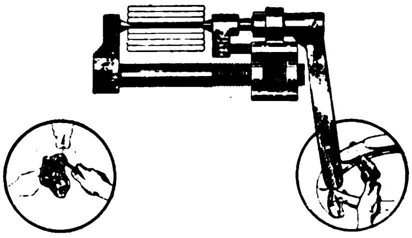


E. H. SPRAGUE
Ball Bearing Floating Post
Worm Steering Gear



Fulton Mud Hooks.





Weise Leaf Spreader.

WEISE LEAF SPRING SPREADER.

Laminated leaf springs are frequently neglected owing to the fact that it necessitates more or less work to take the springs apart or pry them open for lubrication. When not properly oiled or greased they do not thoroughly fulfill their function, which is that of absorbing the road shocks and vibrations and increase the danger of spring breakage.

When the Weise Leaf Spring Spreader is adjusted to the springs it requires but one simple operation of the lever, which is rotable and can be worked or operated at any angle spreading the springs apart and locking itself into this position, whereupon the springs may be sufficiently lubricated.

It can be operated on springs varying from 1½ to 2¾ inches wide, all parts being interchangeable and practically indestructible.

Marketed by A. F. Weise, 133 W. Washington St., Chicago, Ill. Write for prices and literature.

NORWESCO WINDOW DISPLAYS.

The displays are lithographed in six colors. Behind the filled cans printed on the background is an actual reproduction of each can. In this way the goods are always displayed even after the filled cans are sold.

On both sides of the chemist figure in the circle a pocket is provided holding 50 eight-page folders, "Longer Life for Your Car." These folders thoroughly describe the Big Six Norwesco Utilities. The most natural thing in the world for the waiting customer to do is examine the different utilities. They are all removable. The descriptions are easily read and the prices are plainly marked on the literature that accompanies each display. The display is always there and always ready. The customer can sell himself about as easy as you can sell him.

In the window they are a real sales force—a force that not only attracts the passing motorist, but brings him into the store to buy. The combined effect of Norwesco counter sets and window displays gives a strong sales pulling power. They are silent salesmen and make the store the connecting link between the motorist and Norwesco products.

The readers of the Automobile Journal can secure these display by writing

The Northwestern Chemical Co., Marietta, O.

SHURNUFF GREASE RETAINER.

A grease retainer for Ford axles that consists of three felt washers, one rubber asbestos washer, a cold drawn steel cup and two retaining rings. The retainer remains stationary, the two rivets that are already in the axle, preventing it from turning. The company furnishes a counter display free to dealers with each dozen pair.

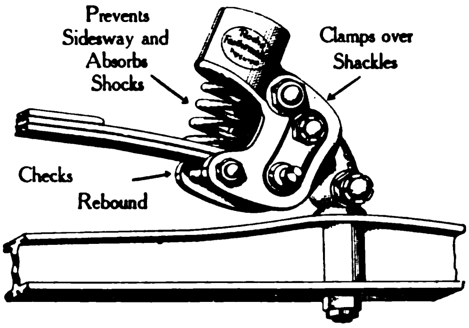
Manufactured by the Shurnuff Manufacturing Co., St. Louis, Mo. Price 90c per pair.

FEATHERRIDE SHOCK ABSORBERS.

Every car owner knows the objectionable feature of spring action on all cars is the rebound of the spring or its throw back, which causes spring breakage and hard riding.

Featherride absorbers overcome this side sway, the makers claim, at the source of the sway, the spring shackles. They hold the car plumb and give to the Ford the stability of heavier cars. Two small malleable iron jackets, a heavy steel coil spring and two bolts complete the device, and they are easily attached in a short time. They fit over the front and rear shackles and nothing on the car is removed or disturbed.

Manufactured by the Roche Electric Manufacturing Co., Grand Rapids, Mich. Price, $7.50 per set of four.

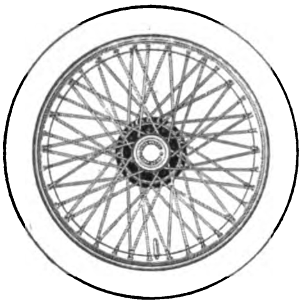


Shock Absorber.

HOUSE TYPE WIRE WHEELS.

The safety of wire wheels is in their greater strength at a vital point. These wheels are less liable to collapse under the shocks of violent collision or skidding blows. Each spoke will stand a strain of 3200 pounds. There are 54 spokes in a single wheel. A set consists of five wheels, four inner hubs, four hub caps, one dust cover for spare wheel and two wrenches. These wheels will stand up and keep going under all road conditions. The inner hub has 10 tapered serrations that fit into and grip the corrugation inside the hub shell. The mechanical locking latch is inside the inner hub and is released by the special wrench, but locks itself automatically and prevents the wheel from rolling off.

Manufactured by the Wire Wheel Corporation of America, New York City, N. Y. Price of full equipment, $60.



House Type Wire Wheels.

SWITCH LOCK FOR FORDS.

This device consists of a strong alloy metal housing that covers the Ford switch. The housing is secured by removing the name plate or the complete metal housing of the old switch and fastening the device over the present switch and securing it with three screws. At the first turn of the key a cam forces out a pair of metal bars, which operate in slots on the inside of the switch. These bars completely cover the screw heads, thus making it impossible to remove the screws. These bars do not operate at each turn of the switch. A bronze contact spring is secured to the cam and when the key is removed this spring makes contact with the central member of the switch, which absolutely grounds on short circuits the four coils, making it impossible to wire around or make an internal connection to operate the ignition system, even in the event of a separate battery being employed. This method does not interfere with the use of a reserve battery or the magneto current. A non-pickable lock is used and two keys supplied, as well as all screws and fittings and the installation can be made, it is claimed, in less than five minutes, using a screw driver only. This device is finished in enamel and nickel.

Manufactured by the New York Coil Co., 338 Pearl St., New York City, N. Y. Price, $3.25.

SECURITY
NEW YORK COIL COMPANY
CITY
MAG BAT

Switch Lock.

LEB-IRON TRAFFIC SIGN.

This sign post is so constructed that it will withstand a large amount of hard usage. It is provided with a seven-inch red or green globe, as shown in cut, with an electric lamp socket and wire connections already for use. It may be connected from beneath the pavement or from overhead, and is sufficiently prominent to cause traffic to take notice. It is approximately six feet in height and the letters are raised one-half inch above the background and covered with white enamel, the background being in red or green smalts. The rest of the sign is finished in black enamel.

Manufactured by the Lebanon Machine Co., Lebanon, N. H. Price with electric light and globe, $20. With provision made for attaching lantern, $16.

KEEP TO RICHT
KEEP TO RICHT

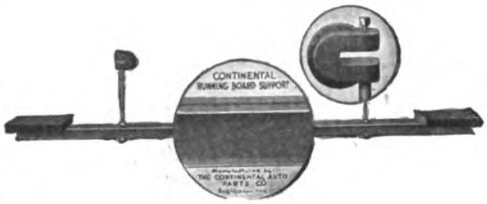
Leb-Iron Traffic Sign.

RUNNING BOARD SUPPORT.

Few other parts of passenger cars and trucks receive such severe use and become loose, wabbly and rattling, than running boards. They afford a convenient carrying space for battery boxes, tool boxes and luggage, and for this purpose they are often overloaded. There is nothing more dilapidated in appearance and for use than a sagging, loosely supported running board.

The Continental Running Board Support provides additional support to the running board, takes out the rattle and enables the owner to carry batteries, tool boxes and luggage, the weight of which would ordinarily bend the running boards out of shape. This device is a necessity to Ford cars and can be used on any other car or on trucks. Can be attached in a few minutes without drilling holes. It will fit any width and height of frame, being I beam construction, with rods double nutted. Weight, 10 pounds.

Manufactured by the Continental Auto Parts Co., Knightstown, Ind. Price $2.75.



THE CONTINENTAL FOOT REST.

For eliminating the annoying objection to driving with the foot accelerator, this foot rest has been designed. It relieves the constant straining effort required in trying to feed the gas steadily when going over bumps and rough spots in the road. With this device the user can feed just the right amount of gas without a "bobble" and the foot does not get tired on long drives, nor is the floor board marred by the driver's heel, as it is without the use of a heel rest. The foot rest is finished in burnished nickel, is adjustable to any position and fills a long needed want on part of car owner.

Manufactured by the Continental Auto Parts Co., Knightstown, Ind. Price $1.50.

N. A. A. A. J. Letter on Show Situation

Commissioner Webster Discusses Attitude of M. A. M. A. Toward Organizations Exhibition

National Commissioner W. W. Webster of the National Association of Automobile Accessory Jobbers has issued an open letter to members bearing on the situation created by the announcement that the organization would hold an accessory show in connection with its convention next fall. It deals with the Motor and Accessory Manufacturers' attitude toward the N. A. A. A. J. show and reads as follows:

"A number of their general letters of April 23rd, on the above subject, have reached this office, stating among other things that they will "assume jurisdiction" over our show.

"I incline to the belief that if they rightly understood just what we had in mind of giving, a trades show without charge, they would not have given the matter a second thought or assumed an arbitrary position. It may interest you to know that long before our association decided to embark in the show business, arrangements were on foot, plans well under way, blue prints had been prepared and options secured to start a similar undertaking for the especial benefit of the accessory manufacturers, inspired I understand by a number who became dissatisfied with the treatment they had received and others who were willing to join hands with them. The feeling in this direction is so strong—has become so thoroughly crystalized—that mere resolutions or arbitrary mandates will not keep it down, but an accessory show of the kind we propose to give is bound to come.

"The announcement issued on March 21 brought out a great number of letters and in many cases the authors very severely criticised the treatment accorded them on show matters in the past. Some openly expressed their dissatisfaction and stated they had about concluded to discontinue making exhibits at the annual shows, while others took the stand that if the order issued on this matter was enforced they would resign from that association rather than submit. It might not be amiss if others feel in the same way to at least take it up with these people and explain the great injustice they are imposing upon you, provided you think well enough of it, or if it is of sufficient importance to you to do so.

"I am trying to reconcile their inconsistency in differentiating against our show when it is a known fact that their members have made exhibits during show time in different hotels, where they bought space and where no admittance fee was charged—that is our case identically—a distinction in practise without a difference in principle.

"In the many letters I have sent out pertaining to the show I have studiously refrained from making any mention whatever of, or alluding to, these expressions of dissatisfaction in any way, feeling it was not just the proper thing to do and preferring not to say anything that might be construed that we were even trying to make capital, or in any way take advantage of them, but I now feel I should give you all the facts.

"I firmly believe nothing has so materially contributed to the marvelous growth and splendid success of our association as the broad spirit of liberality and fairness, on which it has at all times conducted its affairs, and while it is true we are sympathetically jealous of our rights and exercise all fair and honorable means in guarding them, for this right minded persons can only respect us.

"It matters not where, when or how our members show their goods, improve their condition or promote their interests, so long as they properly conduct themselves and make a creditable exhibit in the show we intend to give. I feel it a sense of duty, however, to here clearly point out to you and especially to such of our members who may for the time being, through coercion or otherwise be kept from exhibiting at our show, that exhibits in your line will be made by one or more of your competitors, who will naturally make friends, take orders, sell goods and open new accounts, possibly with your customers. Just how long you can, or will, stand this sort of thing time alone and your ledger accounts will tell, for the great army of the better class of jobbers who you know attend our conventions, will also attend our show and they are a factor which must be reckoned with, for they certainly control the purchasing power and that supports shows.

"It is equally fair to presume that they will not take kindly to any assumption or interference with what they may consider their rights, for all letters received at this office from the jobbers throughout the country lend the highest possible indorsement to our show propaganda.

"Another important consideration is if you absent yourself from such a splendid opportunity of being thrown directly in contact with your customers—the jobbers—as we offer, and which opportunity has, as a matter of fact, never before been offered in this condensed and practical form, you will naturally be loser.

"In the maximum space at our command all but about 30 units have been subscribed for and at this writing I am worried a great deal more about how we are going to be able to take care of our members and supply them with space than I am about anything else.

"This somewhat lengthy letter is not sent for the purpose of unduly influencing you one way or the other, but rather for the purpose of pointing out to you the various phases of the situation, for insofar as our show is concerned it will go on to the end and will be a success beyond any doubt and I regret very keenly, as I stated in the opening of this communication, the attitude of that association on this question, and after you have had answers to some of these questions and other points I have made, cleared up to your satisfaction, you will then be in a reasonably good position to decide what you may wish to do.

"A current issue of a trade journal states 'our application has been turned down by the directors of that organization.' That is not so, as we have made no application nor have we had any correspondence with that organization about the show one way or the other.

"You know it is not only my wish, but it is our disposition and policy to go along in peace, harmony and good will with all kindred organizations and to do those things which will bring out the maximum of good with the minimum of friction in the firm belief that there is room in this country for all and that the policy of 'live and let live' is bound to and finally will prevail against all odds."

Exports Increased in March Over February

Shipments of Motor Cars, Trucks and Parts Showed Substantial Gain, but Are Still Below Last Year.

Exports of motor cars, trucks and parts during March showed a substantial increase over the February figures, but are still below normal, and only 80 per cent. of the total for March, 1917. The valuation of the exports for last March was $8,191,305.

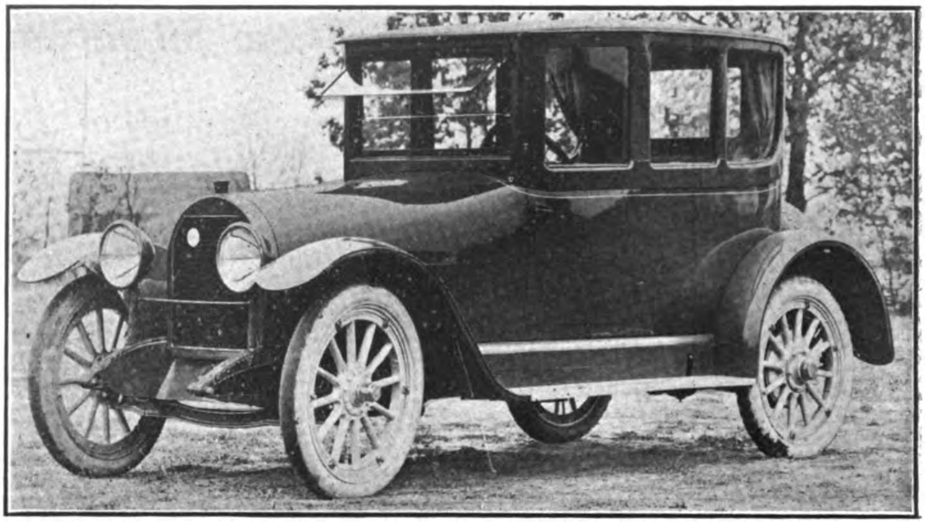
For the nine months ending March 31, 1918, the exports of cars, trucks and parts amounted to $86,093,407, approximately the same as for the corresponding period a year ago. Including the value of the airplanes, motorcycles, gasoline engines, tires, magnetos and spark plugs exported, the March exports were $15,087,310.

A total of 620 trucks were exported during March as compared with 765 in February and 1040 in March, 1917. Great Britain and France took 298 of these and Canada 132. Passenger car shipments increased from 3551 in February and decreased from 5755 in March, 1917, to 4249 last March, the value was $3,981,016. Argentina took only 79 cars, as compared with 335 in February. Chile took 137 as compared with 191 in February.

Trade with the Orient showed an increase and Australia took 248 cars as compared with 144 in February. British India took none in February, but 25 in March. Rusia took none and Norway one.

The Kissel Four Passenger All Year Sedane'

Many novel and striking body designs have been created by the Kissel Motor Car Co., Hartford, Wis., which have made their product stand out distinctly among the several hundred other motor cars manufactured in the country. This is particularly true of the four-passenger sedane' and the seven-passenger staggered door touring-sedan, the latest additions to the Kissel line.



The Kissel Four-Passenger All-Year Sedane' on the "Hundred Point Six" Chassis.

NEW CONCERNS RECENTLY INCORPORATED

Monthly Record of New Business Houses for which Charters Have Been Issued in the Various States and Classified According To Nature of Business

NEWLY ORGANIZED MANUFACTURERS OF CARS.

Wilmington, Del.; Abbott-Downing Truck and Body Co.; $6,000,000; to manufacture and sell motor trucks, wagons and other vehicles.

Wilmington, Del.; The Clamert Manufacturing Co.; $100,000; to manufacture motor driven vehicles.

Wilmington, Del.; Liberty Tractor Co.; $200,000; to manufacture tractors and automobiles; C. L. Rimlinger, N. M. Clancy, F. A. Armstrong.

Dover. Del.; Piedmont Motors Corporation; $2,000,000; to manufacture and sell automobiles and trucks; W. A. Taylor, R. A. Skinner, N. M. Jordan.

Wilmington, Del.; Pittsburgh Truck Wheel Corporation; $300,000; to manufacture automobiles and especially motor truck wheels.

Elizabeth, N. J; Crescent Truck Co., 347 First avenue; $100,000; to manufacture trucks, tractors and trailers.

New York, N. Y.; G. & P. Motor Truck Corporation; $10,000; S. Partisky, S. and I. Grotsky.

New York. N. Y.; N. & W. Garage and Motor Trucking, Inc.; $5000; to deal in automobiles and to conduct a garage business and trucking and transportation; Harry Nyegoord, Henry M. Wetterauer, Florence V. Wetterauer.

New York, N. Y.; Automotive Sales Corporation; $200,000; to manufacture automobiles, motors and accessories; Elmer E. Cable, Reuben Tally, David T. Rosen.

Columbus. O.; Columbus Armleder Motor Truck Co.; $30,000; Charles H. Furman, Jacob Mattlin, Benjamin F. Levinson, Mornes Belm, August W. Weber.

Cleveland, O.; Standard Trailer Co.; $15,000; Robert W. Patterson, T. D. Golden, C. O. Luce, H. E. Luce, J. K. Patterson.

Pittsburgh, Pa.; Clamert Manufacturing Co.; $100,000; to manufacture and sell motor driven vehicles; George W. Emmett, Edwin Kriegler, E. R. Boots.

Wheeling, W. Va.; F. M. Sheets Motor Co.; $25,000; to manufacture automobiles; F. M. Sheets, E. C. Prince, Guy D. Sheets, L. M. Kline, S. E. Sheets.

ACCESSORIES, SUPPLIES AND EQUIPMENT.

Dover. Del.; Liberty Roller Bearing Co.; $500,000; F. R. Hansell, J. Vernon Pimm, S. C. Seymour.

Dover, Del.; The Power Rubber Co.; $1,000,000; H. Lindale Smith, Frank G. Carpenter, Frank H. Townsend.

Wilmington, Del.; Belleville Tire and Rubber Co., Inc.; $50,000; to manufacture tubes and tires; C. L. Rimlinger, M. M. Clancy, F. A. Armstrong.

Wilmington, Del.; The Colonial Tire and Rubber Co.; $1,500,000; to manufacture tires and other rubber articles.

Wilmington, Del.; Day's Pneumatic Tire Co.; $200,000; W. I. N. Lofland, G. W. Morgan, F. Jackson.

Wilmington, Del.; Scattergood-Ralph Tire Co.; $25,000; to manufacture tires of all kinds.

Chicago, Ill.; General Lubricating Co.; $5000; H. T. Dorrington, Ernest Peacock, Benjamin H. Wrisbrod.

Chicago, Ill.; Washington Tire and Vulcanizing Co.; A. B. Seelig, I. M. Amter, L. E. Seelig.

Peoria, Ill.; Safety Signal Corporation; $200,000; to manufacture a safety device for motor cars; B. F. Hardesty, W. H. Kirk, H. O. Johnson.

Alma, Mich.; Alma Electric and Battery Co.; $5000; G. A. Trombley, J. H. Ackerman, F. H. Witters, Z. Lalonde.

Brooklyn. N. Y.; Fulton Tire Corporation; $200,000; to manufacture auto tires; Catherine A. Weldon, Harry H. Jacobson.

Hudson Falls, N. Y.; V. & M. Co.; $10,000; to deal in automobile accessories; R. I. Vincent, W. L. M. Gowan, C. D. McCall.

New York, N. Y.; Robert Tire Co.; $25,000; W. C. Monks, A. C. Briggs, E. S. Roberts.

New York, N. Y.; X. L. N. T. Improved Auto Plate Co.; $10,000; G. Tiernen, F. H. Purcells, J. B. Purcells.

Schenectady, N. Y.; Arsco Manufacturing Co.; $10,000; to deal in automobile supplies; J. O. Nicholson, E. Sharpley, A. Rappoport.

Syracuse, N. Y.; Lee Auto Supply Co.; $50,000; J. F. Peebles, O. E. Coseo, J. W. Lee, Jr.

Columbus, O.; B. B. Harris Tire and Rubber Co.; $10,000; A. S. Hetzel, Karl E. Burr, Charles A. Palmer, Sherman B. Randall, B. B. Harris.

Akron, O.; Royal Tire and Supply Co.; $10,000; W. E. Renneckar, Mae L. Renneckar, J. O. Surbey, Carle I. Surbey, F. S. Lichtenwalter, Nettie M. Lichtenwalter.

Philadelphia, Pa.; Penn Auto Tire Co.; $10,000; Joseph Scwab.

PARTS AND FITTINGS MAKERS.

Wilmington, Del.; Reller Sales Co.; $20,000; to manufacture and deal in engines, motor trucks and automobiles; William F. O'Keefe, E. E. Aberle, H. J. Dowdell.

Wilmington, Del.; Safety Fender Corporation; $500,000; to manufacture fenders and devices for automobiles; M. L. Rogers, L. A. Irwin, M. L. Gatchell.

Chicago, Ill.; Victory Motors Co.; to manufacture and deal in internal combustion engines; $200,000.

Detroit, Mich.; Larned Tool and Die Co.; $15,000; William C. Weiske, Charles V. Ketts, H. J. Labean.

New York, N. Y.; Eureka Auto Products Corporation; $100,000; Arthur D. Middleton, George B. Gover, John F. Mason.

Yonkers, N. Y.; Harvey Auto Sales Co., Inc.; $80,000; to manufacture motors, engines and automobiles; A. S. Harvey, J. Jones, A. A. Boukget.

Chicago, O.; Victory Motors Co.; $200,000; to manufacture and deal in internal combustion engines.

Pittsburgh, Pa.; Industrial Motors Co.; $10,000; John C. Shaw, C. F. Perkins, J. F. G. Smith.

Milwaukee, Wis.; Horizontal Hydraulic Hoist and Body Co.; $50,000; to manufacture automatic dump bodies and hoisting devices for motor trucks; Charles D. Millman, Edward R. Bacon, Benjamin A. Resse.

Milwaukee, Wis.; United States Auto Propeller Co.; $20,000; to manufacture propellers and motor parts for airplanes; Fordyce H. Bottum, Frank L. McNamara, John H. Hurley.

GARAGES AND REPAIR SHOPS.

Carmel. Ill.; West Fourth Street Garage; $10,000; Charles Smith, E. K. Adams, G. W. Miller.

Bronx, N. Y.; N. & W. Garage and Motor Trucking Co.; $5000; V. and H. M. Wetterauer, H. Nyegaard.

Brooklyn, N. Y.; Our Own Garage; $10,000; H. W. Phimister, J. Holland, A. Glerle.

New York, N. Y.; Glen Garage; $20,000; H. I. Perlin, A. Schnieder, L. Leight.

New York. N. Y.; Jonas Auto Repair Co.; $5000; M. Seligson, H. Amster, A. Jonas.

New York, N. Y.; Equitable Service Corporation; $25,000; to engage in a general garage business; L. L. Archer, J. J. Lenton, R. H. Tucker.

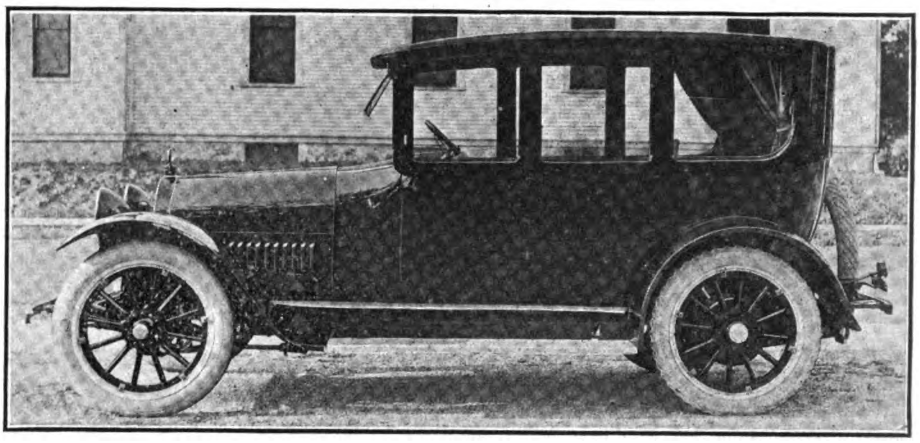
New York, N. Y.; Spring Garage; $10,000; H. R. Rampone, L. C. Spaldo, P. Spaldo.

New York, N. Y.; Sun Garage, Inc.; $30,000; to operate a garage business; Isidore Zinker, David Zinker, Samuel Kohn.

Cleveland, O.; Combined Knowledge Tire and Repair Co.; $30,000; Harry D. Bates, John K. Karkoff, James H. Rooke, George W. Sinclair.

Tulsa, Okla.; Auto Repair and Ignition Co.; $8000; L. A. Newsome, H. R. Wakefield, W. M. Henderson.

Filbert, W. Va.; The Filbert Garage; $25,000; to operate garage; W. W. Harding, George K. Fielder, J. A. Hall, R. R. Stuart, L. L. Whitney.



The Kissel Five-Passenger Staggered Door Sedan.

DEALERS IN AUTOMOBILES AND MOTOR TRUCKS.

Little Rock, Ark.; Capital Motor Co.; $25,000; J. N. Wheeler, John M. Quarles, George E. Shelton, R. J. Brooks, Hogan Oliver.

Little Rock, Ark.; The C. J. Snyder Co.; $25,000; to do a general automobile and gas engine repair business; J. G. Burlingame, president; Claude S. Wells, secretary; Robert Crow, treasurer; Gordon H. Campbell, S. R. Pugsley.

Dover, Ill.; Intercity Motor Transportation Co.; $100,000; F. R. Hansell, J. Vernon Pimm, S. C. Seymour.

Alton, Ill.; Bluff City Automobile Co.; $5000; Emil Ernst, Christ Solomon, Harry Ernst.

Chicago, Ill.; Brunt Auto Sales Co.; $15,000; T. J. Peden, J. H. Matthews, H. A. Quinn.

Chicago, Ill.; Victory Motor Co.; $200,000; John R. Basston, Chester J. Moore, William A. Lamb, Henry J. Miller.

Elkhart, Ind.; Peck's Super Heater Co.; $10,000; Raymond G. Peck, Carl E. Mischler, H. J. Rife.

Indianapolis, Ind.; Armstrong Transfer and Trucking Co.; $10,000; to do carting and draying; Clarence M. Armstrong, Clarence E. Armstrong, Gertrude A. Armstrong, Lenoir T. F. Zaiser.

Indianapolis, Ind.; Cole Sales Co. has changed its name to the Lathrop-McFarland Co.

Indianapolis, Ind.; Robert M. Bowes Co.; $10,000; Robert M. Bowes, R. H. Scrogin, Charles E. Bowes.

Muncie, Ind.; C. W. Koehlinger Co., 219 West Main street; $20,000; C. W. Koehlinger, Clara Koehlinger, Philip A. Koehlinger.

Sullivan, Ind.; Sullivan County Motor Co.; $10,000; David Giles, Thursman McDonald, W. D. Bolinger.

Frankfort, Ky.; E. H. Silver Co.; $5000; to conduct an automobile business; E. H. Silva, Walter I. DeRoo, E. H. Gierach.

Louisville, Ky.; Liberty Auto Co.; $10,000; to do a general automobile repair business; A. A. Ericson, R. D. Otter, Frank Kelly.

Louisville, Ky.; The Louisville Automobile Dealers' Association; $7500; to give automobile shows and further the interests of dealers both in a business way and socially; Prince Wells, W. B. Thomas, P. S. Longest.

Great Falls, Mont.; Wilds-Thurston Motor Co.; $40,000; to deal in automobiles, motors, traction engines, trucks and auto accessories; W. M. Wilds, W. M. Thurston, Charles Bys.

St. Joseph, Mo.; St. Joseph O. K. Auto Co.; $2000; J. D. Hurd, F. G. Weary, James Strock, William H. Miller.

Camden, N. J.; Ridgway Auto and Car Co.; $100,000; to conduct a taxicab transportation.

Elizabeth, N. J.; Crescent Truck Co.; $100,000; Frederick Conlin, Philip S. Saitta.

Albany, N. Y.; Albany Automotive Corporation; $10,000; to deal in auto trucks; M. Lawson, W. Lawson, G. M. Miller.

Bronx, N. Y.; Tessler-Schwarts Auto Trucking Co.; $7500; S. Cohen, L. Schwarts, H. Tessler.

Bronx, N. Y.; Gross & O'Shea; $6000; F. J. Bowman, R. A. O'Shea, H. A. Gross.

Brooklyn, N. Y.; Commercial Auto Trucking Co.; $5000; M. Leffert, H. Weinert, A. A. Weinert.

Brooklyn, N. Y.; Flushing Auto Trucking Co.; $10,000; M. Zeldenburg, D. Zeldenburg, S. Zeldenburg.

Brooklyn, N. Y.; Local Auto Trucking Co., Inc.; $5000; to conduct a general automobile trucking and carting business; Fred Williams De Houst, Frank Klein, Max Levin.

Buffalo, N. Y.; Acanthus Co.; $25,000; to deal in machinery and general merchandise; J. M. Thompson, N. B. Paxson, C. S. Rabe.

Mt. Vernon, N. Y.; Allied Auto Electric Co., Inc.; $5000; to do a general contracting business and electrical work and to deal in automobiles, motorcycles and motor boats and electrical supplies; Grover C. Kirchhof, Eleanor Kirchhof, Elsie G. Kirchhof.

New York, N. Y.; B. & C. Manufacturing Co., Inc.; $150,000; to deal in automobiles, motorcycles and bicycles; also accessories and parts.

New York, N. Y.; Efficiency Auto Delivery Corporation; $1000; general transfer and express business; Harry Canter, Abraham Canter, Louis Zantz.

New York, N. Y.; Elco Trucking Co., Inc.; $5000; to conduct a general transfer and trucking and express business; Benjamin R. Spiedel, Joshua L. Evans, Francis M. Applegate.

Rochester, N. Y.; Freckelton Parcey Delivery, Inc.; $10,000; to operate auto trucks or horse deliveries; George W. Freckelton, William J. Freckelton, Roy J. Swanton.

New York, N. Y.; G. and P. Motor Trucking Corporation; $10,000; S. Paritsky, S. Grotsky, I. Grotsky.

New York, N. Y.; Malaylan Export and Import Co.; $6000; to deal in automobiles, airplanes and furniture; E. Kiczales, A. A. McWhirter, S. N. Widdup.

New York, N. Y.; Rubin-Fisher Auto Trucking Co., Inc.; $5000; to do a general carting and trucking business; Louis Fisher, N. H. Kramer, Nathan Rubin.

New York, N. Y.; Ruff & Burd; $5000; to conduct an automobile business; E. L. Briscach, J. K. Burd, Jr., A. C. Ruff.

New York, N. Y.; Tessler-Schwartz Auto Trucking Co.; $7500; S. Cohen, I. Schwartz, H. Tessler.

New York, N. Y.; Wheelan Motor Line, Inc.; $100,000; to do trucking and transfer business; D. T. Rosen, M. Gordon, R. Tally.

Yonkers, N. Y.; Harvey Auto Sales Co.; $80,000; A. A. Bourget, J. Jones, A. S. Harvey.

Akron, O.; R. and R. Taxicab and Transfer Co.; $20,000; Solomon Rothenberg, Louis Rosenback, Frank B. Burch, Harry G. Ream, Earnest C. Martin.

Akron, O.; Paragon Motor Freight Co.; $50,000; Max Bogatin, F. C. Newman, Clarence H. Clay, W. H. Hyatt, B. G. Metz.

Cleveland, O.; Cleveland-Briscoe Motor Sales Co.; $15,000; John Pirample, Kate Pirample, Thomas A. Krivanek, Joseph Fred Paleck, Anna Paleck.

Cleveland, O.; Lee Royal Aviation and Engineering Manufacturing Co.; $100,000; L. R. Carpenter, Harry A. Shook, W. Ross Armour, G. S. Lawson, John R. Olderman.

Cleveland, O.; Motor Service Co.; $150,000; Charles Dehn, A. W. Born, Carl Baumgardner, D. R. Knisely, W. C. Wing.

Cleveland, O.; Pearl Motor Sales Co.; $10,000; D. B. Donnelly, Fred C. Evers, John W. Rebtz, R. C. MacGill, P. L. Emery.

Cleveland, O.; Storage Battery Rebuilding Co.; $15,000; Henry L. Beggs, Samuel L. Bowlus, Lawrence C. Meyer, Arthur W. Lonbarger, Gilbert J. Spencer.

Cleveland, O.; Valley Motor Trucking Co.; $25,000; S. H. Holding, Tracy D. Duncan, M. H. Ordner, B. M. Parker, E. L. Heid.

Portsmouth, O.; Blue Line Taxi Co.; $2500; Si Strauss, Gus H. Heemer.

Toledo, O.; Abele-Nauts Sales Co.; $15,000; Sigmund Sanger, Charles H. Nauts, Gustave Abele, Albert J. Kronz, T. Wooster.

Mt. Carmel, Pa.; The Black Diamond Auto Co.; $5000; B. F. Christ.

Philadelphia, Pa.; Oberroltzer Philadelphia and New York Express Co.; $10,000; to conduct a trucking business; Edward M. Bird.

Philadelphia, Pa.; Acason Solis Co.; $10,000; to deal in automobiles; John S. Battles.

Pittsburgh, Pa.; Olympian Motor Sales Co.; $20,000; B. L. Forsythe, H. E. Woodward, Jr., J. O. Cunningham.

Camden, S. C.; The Camden Motor Car Co.; $2000; W. R. DeLoache, S. B. Beard.

Greenwood, S. C.; Smathers Motor Car Co.; $10,000; J. R. Smathers, J. P. Abney.

Memphis, Tenn.; The Tri-City Taxi Co.; $10,000; J. R. Brown, W. T. Nutt, H. L. Wyse, Arch Mitchell, T. T. Dyer.

Beaumont, Tex.; Led Better Auto Co.; $8300; M. A. Ledbetter, S. J. Flores, S. H. Vance.

Cuero, Tex.; Cuero Buick Auto Co.; $20,000; H. R. Frosbese, J. R. Frosbese, F. H. Schmidt.

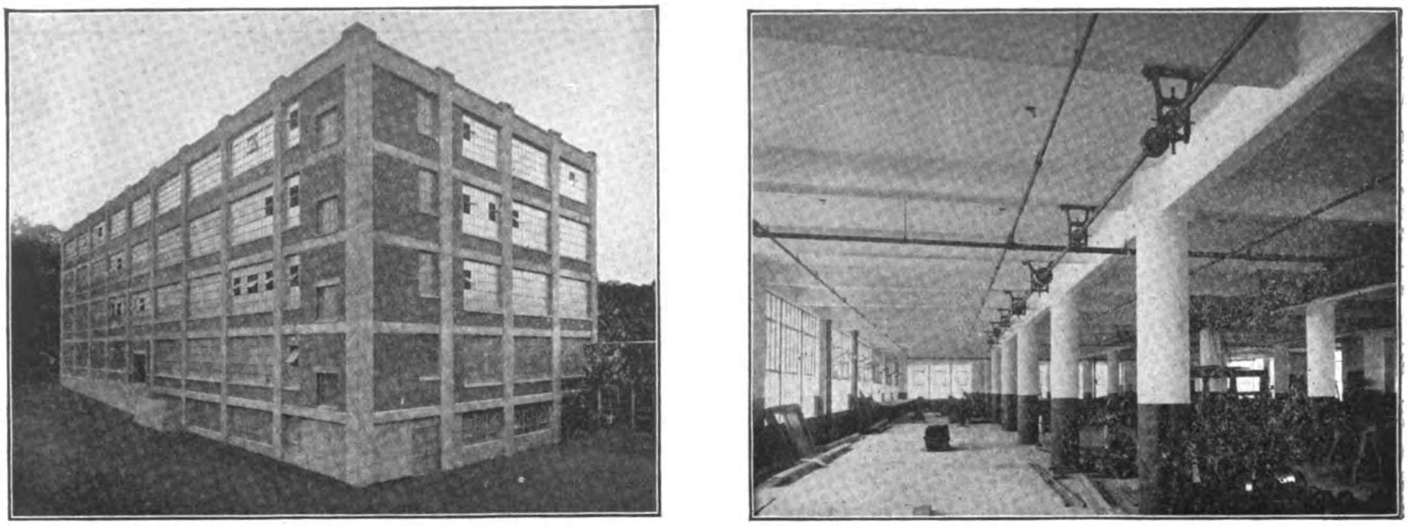
Waco, Tex.; McCauley-Ward Motor Supply Co. has increased its capital stock from $25,000 to $50,000.

South Bend, Ind.; Lomont & Co., Fort Wayne, Ind.; $75,000; Clement J. Lomont, John A. Lomont, J. A. Becker, Ameil C. Gladieux.

McAlester, Okla.; Gwin Automobile Co.; $5000; T. T. Lewis, J. H. Gwin, D. A. McDonald.

Oklahoma City, Okla.; Crane-Hayers Motor Sales Co.; $10,000; Ross Crane, Charles C. Crane, F. H. Hayers.

Monroe, Wis.; Monroe Sales Co.; $30,000; Roy Jaberg, Fred Faeser, Dr. W. G. Bear, J. J. Tschudy, Frank P. Davis.



Exterior and Interior View of the New Plant of the Jones Speedometer Co. at New Rochelle, N. Y., Provides Approximately 65,000 Feet of Floor Space for Manufacturing and Storage.

RECORD OF NEW BUILDING PLANS IN MAY

Contracts Made and Plans Contemplated for Alterations or the Building of Garages, Repair Shops, Service Stations and New Plants.

CONTEMPLATED PLANS AND SPECIFICATIONS.

Phoenix, Ariz.; Babbitt-Holson Co.; one-story sales room, 200x150.

Fort Smith, Ark.; Interstate Garage and Storage Co.; one-story garage, 75x144.

Harrison, Ark.; W. P. Glass; one-story garage, 50x96; $6000.

Little Rock, Ark.; Leveck & Son; one-story garage at 1123 Main street; $10,500.

Little Rock, Ark.; United States Auto Co.; two-story fireproof garage, 100x150; salesroom, 40x40; storage space, 100x110; $75,000.

Corvoran, Cal.; H. Brewer and H. Gay; one-story garage, 75x140.

Los Angeles, Cal.; J. J. Norris; one-story garage; $12,500.

Sacramento, Cal.; James Remick; one-story garage at 12th and K streets; $80,000.

Sacramento, Cal.; D. A. Gannon; one-story garage; $10,522.

Bridgeport, Conn.; Salvatore Arllo; one-story garage; $1000.

Bridgeport, Conn.; Zimmer Brothers; one-story garage, 60x160; $20,000.

Manchester, Conn.; John Proctor, corner Centre and West Centre streets; one-story garage, 40x75; $8000.

Waterbury, Conn.; John Lang; one-story garage, 62x39; $7500.

Wilmington, Del.; Mrs. George Chambers, corner Gilpin avenue and Riverview road; 1½-story private garage; $3000.

Washington, D. C.; Harry Bosley, 1309-11 Sixth street, N. W.; two-story garage; $4000.

Washington, D. C.; Robel & Mangum Ford Agency, 1429 L street, N. W.; one-story public garage; $10,000.

Washington, D. C.; Southern Building Supply Co., 3200 K street, N. W.; garage, warehouse and office building; $150,000.

Fort Lauderdale, Fla.; Broward Sales Co.; one-story garage, 50x140.

Macon, Ga.; H. J. Lamar Co.; three-story reinforced concrete garage, site 87½x215.

Hailey, Ida.; Fowley Auto Co.; one-story garage, 48x120.

Payette, Ida.; O. A. Walling; one-story garage, 90x142; $17,000.

Payette, Ida.; Payette Modern Garage; one-story garage, 90x150.

Alton, Ill.; R. J. Young, Wall and Williams street; one-story garage; $8000.

Cairo, Ill.; Jackson Motor Car Co.; one-story garage, 50x100.

Chicago, Ill.; J. J. Novy, 3238 W. 22nd street; one-story garage, repair and paint shop, 50x125.

Chicago, Ill.; Harry J. Holton, 140 S. Dearborn street; one-story garage, 45x120; $10,000.

Paris, Ill.; Kennerly, Steigmeyer & Henkanff, 505 Benoist building, St. Louis, Mo.; one-story public garage, 88x146.

Peoria, Ill.; W. A. Gray, Grimes building; one-story garage; $3000.

Peoria, Ill.; Graham-Seizer Co.; two-story garage; $23,000.

Peoria, Ill.; Standard Oil Co.; one-story filling station; $4000.

Red Bud, Ill.; J. Schriever; two-story public garage and sales room, 42x72; $8000.

Viola, Ill.; L. D. Baxter; one-story and two-story garage, 54x80.

Berne, Ind.; John Macilan; two-story public garage, 66x132; $10,000.

Corunna, Ind.; Oster Brothers; one-story garage, 25x80.

East Chicago, Ind ; E. I. Bunnell, 617 Washington street, Gary, Ind.; two-story Ford sales building and garage, 112x145; $50,000.

Elkhart, Ind.; Standard Oil Co., 103 S. Howland street; one-story garage and service station; $12,000.

Mishawaka, Ind.; L. J. Casbon; one-story garage, 40x99; $3000.

Richmond, Ind.; G. E. Camplin, 11th and F streets; one-story auto filling station; $8000.

Tipton, Ind.; K-C Motor Co.; one-story salesroom 42x120.

Davenport, Ia.; Standard Oil Co.; one-story garage, 80x100; $35,000.

Davenport, Ia.; Horst & Strieter Co.; one-story garage at 416 W. Third street, 50x150.

Des Moines, Ia.; P. L. Crouch, 535 W. 28th street; one-story garage, 58x66; $2000.

Des Moines, Ia.; Willard Storage Battery, 407 15th street; one-story service station, 80x130; $30,000.

Iowa City, Ia.; Sidwell Motor Co.; 1½-story garage, 50x150; $25,000.

Kalona, Ia.; Shetler & Einen; one-story garage, 20x62; $15,000.

Monticello, Ia.; Standard Oil Co.; Davenport, Ia.; one-story filling station, 18x20; $4500.

Sioux City, Ia.; A. Ostling, 510 Water street; one-story garage, 50x96; $7000.

Sioux City, Ia.; Davidson Realty Co.; 543 Davidson street; two-story garage, 150x160; $25,000.

Arkansas City, Kan.; A. A. Newman; one-story garage, 75x132.

Conway Springs, Kan.; Edward Hyatt; one-story garage, 40x130.

Osage City, Kan.; Miller & Schroeder; one-story garage, 60x140; $15,000.

Louisville, Ky.; George Hoertz, Sr., 4700 Grand boulevard; one-story fireproof garage, 32x105; at 315 31st street; $10,000.

Monroe, La.; S. C. Blackman Auto Co.; one-story brick garage and sales room, 60x140.

Baltimore, Md.; Ruxton M. Ridgely; one-story garage, 35x45.

Baltimore, Md.; Joseph J. Siemek, 3020 Elliott street; one-story public garage, 20x70; $5000.

Baltimore, Md.; A. Schauman, 4232 Pratt street; one-story public garage, 69x82; $15,000.

Baltimore, Md.; Acme Building Co., 517 A, Equitable building; block 60 fireproof garages, each 11x18, on Park Heights avenue.

Hagerstown, Md.; Charles F. Hull; one-story garage; $10,000.

Boston, Mass ; A. Lobel; one-story garage at 1243 Blue Hill avenue, 190x120; $45,000.

Boston, Mass.; George N. Dowse; one-story garage at 1676 Dorchester avenue, 100x100; $30,000.

Boston, Mass.; Portland Street Garage, Inc., corner Friend and Portland streets; six-story; $175,000.

Dorchester, Mass.; G. M. House; one-story garage at 1776 Dorchester avenue; $50,000.

Greenfield, Mass.; Greenfield Baking Co., 22 Davis street; two-story public garage, 40x50.

Leominster, Mass.; William McAuley; one-story garage, 40x50; $2500.

Milford, Mass.; Thayer estate, care L. S. Aldrich, Uxbridge, Mass.; one-story public garage, 60x90; $10,000.

New Bedford, Mass.; Charles L. Ricketson, 108 School street; one-story public garage, 50x100; $10,000.

Revere, Mass.; Edward A. Boyson; one-story garage, 20x49; $4900.

Southbridge, Mass.; Frank W. Parker; one-story garage, 50x50.

Mt. Clemens, Mich.; M. J. Cohen; one-story garage, 28x50; $10,000.

Duluth, Minn.; Northwestern Oil Co., foot of Ninth street; one-story filling station; $1200.

Fort Ripley, Minn.; Albert Johnson; one-story public garage; $15,000.

Frazee, Minn.; Peter Smith; one-story public garage, 40x90.

Rochester, Minn.; C. E. Ellis; one-story garage, 40x70; $1000.

St. Paul, Minn.; G. B. Baird, 228 W. Third street; one-story garage, 33x40.

Wadena, Minn.; Standard Oil Co., Fourth and Oak streets; one-story filling station; $5000.

Hannibal, Mo.; Storrs Ice and Coal Co.; two-story private garage, 24x54; $2500.

Joplin. Mo.; Russell Davis; two-story garage, 100x120; $18,000.

Kansas City. Mo.; Perky Brothers, 2431 Prospect street; one-story garage, 32x60; $6000.

Kansas City, Mo.; Coleman Tractor Co.; one-story brick, stone and stucco factory building; $10,000.

Kansas City, Mo.; Greenlease Motor Car Co.; four-story reinforced concrete automobile salesroom, 175x114; $250,000.

Marshfield. Mo.; Clafts, Andrews & King; one-story garage, 70x133; $6000.

St. Louis, Mo.; Joseph Hanss; one-story garage; $5000.

St. Louis, Mo.; E. F. Dietrich; one-story garage; $8000.

St. Louis, Mo.; E. M. Worthington; one-story garage; $30,000.

St. Louis, Mo.; George Fischer, 4201 Washington street; one-story private garage, 22x39; $2800.

St. Louis, Mo.; O. J. Popp, 801 Odd Fellows building; one-story public garage, 37x125; $8000.

St. Louis, Mo.; George T. Stickel, 3516 Russell street; one-story private garage, 21x24; $3500.

St. Louis, Mo.; J. D. Paulis, 703 Merchants Laclede building; one-story public garage, 55x140.

Ashland, Neb.; Tegelberg Auto Co.; one-story garage, 70x121; $12,000.

Auburn, Neb.; Coulter & Gritz; one-story garage, 50x140.

Lincoln, Neb.; Nebraska Buick Motor Sales Co.; four-story service station, 89x136.

Omaha, Neb.; Consumers' Refinery Co.; Grain Exchange building; one-story oil filling station, 16x20; $2000.

Omaha, Neb.; A. T. Klapp, 4813 Chicago street; one-story garage, 45x54; $4000.

Nashua. N. H; H. C. Lintott, 25 Main street; one-story public garage, 70x100; $10,000.

Jersey City, N. J.; Armour & Co.; one-story garage at 298 Coles street, 100x100.

Morris Plains, N. J.; New Jersey State Hospital, care C. M. Bowens; one-story garage, 40x40; $4000.

Newark, N. J.; Frank V. Zahn, 283 Chadwick avenue; one-story public garage, 50x142, and individual garages, 200x50; $10,000.

Newark, N. J.; Harris Ruderman, 66 Pershine avenue; one-story private garage, 29x56; $2500.

Newark, N. J.; F. G. Johnson, 22 Centre Market; one-story private garage, 15x22.

Newark, N. J.; Central Foundry Co., 361 Grove street; one-story garage, 24x24; $2000.

Newark, N. J.; Angelo Giuliano, 70 Hoyt street; one-story public garage, 30x60; $6000.

Newark, N. J.; Pasquale Saldutti, 92 Jackson street; one-story public garage, 50x100; $7000.

Newark, N. J.; Jacob Skolink & Co., 33 and 35 Somerset street; one-story garage, 44x100; $8000.

Newark, N. J.; Mrs. Annie Beyer; one-story garage at 694-96 S. 15th street, 48x130; $14,000.

Trenton, N. J.; Israel Wagner, 65 Bellevue avenue; two-story garage, 25x100; $8000.

Santa Fe, N. M.; Nathan Salman; one-story garage, 90x138.

Tucumari, N. M.; G. A. Eager; one-story garage; $40,000.

Adams, N. Y.; P. W. Devendorf, 141 Arsenal street, Watertown, N. Y.; one-story garage; $5000.

Albany, N. Y.; Peter Aiozza, 85 Madison avenue; one story garage, 23x28; $2000.

Brooklyn, N. Y.; Adam Schuman, 106 82nd street; two-story garage, 37x41; $7000.

Brooklyn, N. Y.; W. J. Smith; one-story garage, 20x100; $15,000.

Brooklyn, N. Y.; Albert Stoecker; one-story garage, 30x19; $2000.

Brooklyn, N. Y.; Annie Schultz, 479 Sutter avenue; one-story garage and storage station; $5000.

Brooklyn, N. Y.; Rose Mantel, 20 Beaver street; one-story garage, 21x62; $10,000.

Brooklyn, N. Y.; Martin Rauscher; two one-story garages, 16x211 and 62x16; $6400.

Brooklyn, N. Y.; Hebrew Burial Society, 101 Varet street; one-story public garage; $7000.

Brooklyn, N. Y.; Mrs. Ragna Hendricksen, 1007 St. Marks avenue; one-story private garage, 25x33x18.

Brooklyn, N. Y.; Reuben Cantor, 218 Rutledge street; one-story public garage, 80x100; $5000.

Brooklyn, N. Y.; Tobias Goldstone, 50 Graham avenue; one-story public garage; $10,000.

Brooklyn, N. Y.; Beckie and Annie Zellner, 435 Lorimer street; one-story garage, 25x100; $4500.

Brooklyn, N. Y.; Mettie Hyman, 44 Court street; two-story public garage, 73x120; $40,000.

Brooklyn, N. Y.; Benjamin Feinberg, 80 Manhattan avenue; one-story public garage, 45x100; $15,000.

Brooklyn, N. Y.; Carmella Manzella, 63 Sackett street; one-story garage, 30x73; $4000.

Brooklyn, N. Y.; Associated Mechanics' Building Corporation, 414 Bedford avenue; two-story garage, 100x100; $40,000.

Brooklyn, N. Y.; Marie R. Pindegar, 323 Manhattan avenue; one-story garage, 30x70; $5000.

Brooklyn, N. Y.; C. & J. Realty Co., 115 Glenmore avenue; one-story garage, 100x100; $18,000.

Brooklyn, N. Y.; Leo Landsberg, 115 Liberty avenue; one-story garage, 75x100; $10,000.

Brooklyn, N. Y.; John Norrazzo, 14 16th street; one-story garage, 48x55; $5000.

Brooklyn, N. Y.; Beverly Building Co., 44 Court street; one-story public garage, 50x100; $12,000.

Brooklyn, N. Y.; M. Hartfield Building Corporation, 25 E. 99th street; one-story garage, 25x78; $3500.

Brooklyn, N. Y.; Rigney Co., 348 Park avenue; one-story garage, 46x98; $12,000.

Brooklyn, N. Y.; Frank Richards, 171 Jamaica avenue; 33 one-story garages, 10x20 each; $13,500.

Brooklyn, N. Y.; Martin Garage, Inc., 4815 Third avenue; one-story public garage, 50x100; $15,000.

Brooklyn, N. Y.; John Wood, Northwest corner Calyer and Leonard streets; one-story private garage, 48x48; $2500.

Brooklyn, N. Y.; Samuel Barasch, 44 Court street; one-story garage; $20,000.

Brooklyn, N. Y.; Lory Max, 1065 41st street; one-story public garage, 71x105; $22,000.

Brooklyn, N. Y.; Kings County Lodge, F. A. M., 824 Flatbush avenue; one-story garage, 26x98; $5000.

Brooklyn, N. Y.; M. Levy and E. Plotz, 1065 41st street; one-story garage, 71x105; $19,500.

Brooklyn, N. Y.; Cranford & Co.; one-story garage, 150x150; $35,000.

Brooklyn, N. Y.; Grand Building Co.; one-story garage, 78x115; $50,000.

Brooklyn, N. Y.; H. E. Kirdes; one-story garage, 40x40; $25,000.

Brooklyn, N. Y.; Continental Garage, Inc.; one-story garage, 100x127; $30,000.

Brooklyn, N. Y.; Miss A. Ward, 2901 W. 28th street; one-story public garage, 50x100; $8000.

Brooklyn, N. Y.; R. Stark, 187 Tompkins avenue; one-story garage, 20x100; $4000.

Brooklyn, N. Y.; John W. Sands, 472 58th street; nine one-story garages, each 16x16; $27,000.

Brooklyn, N. Y.; A. W. Schmidt, 3621 Avenue G; 40 one-story garages and repair shop, 100x118; $20,000.

Long Island City, L. I., N. Y.; Standard Oil Co.; one-story garage, 29x150; $10,000.

Long Island City, L. I., N. Y.; Ignatz Wohl, 542 Eighth avenue; one-story garage, 24x50; $5000.

Long Island City, L. I., N. Y.; De Rose & Cavalieri, 148th street and Third avenue; one-story garage, 50x100; $10,000.

Long Island City, L. I., N. Y.; Frank Hipp; one-story garage, 40x50; $3000.

Malone, N. Y.; Northern Garage, care George F. Schrader, Saranac Lake, N. Y.; one-story garage, 50x150.

Mt. Vernon, N. Y.; Valvoline Oil Co., 71 Broadway, New York; one-story garage and storage station; $18,000.

New Rochelle, N. Y.; Samuel Roseff; one-story garage, 160x98; $20,000.

New York, N. Y.; D. Meenan; one-story garage, 87x100; $130,000.

New York, N. Y.; J. M. Cooper; one-story garage at 93-95 Charles street, 38x96; $7000.

New York, N. Y.; Benedicta Vetter; one-story garage at Washington avenue and 182nd street, 50x130.

New York, N. Y.; West 19th Street Garage Corporation; one-story garage, 154x92; $100,000.

New York, N. Y.; Louis Gold; one-story garage at 228-30 E. 85th street, 50x100; $35,000.

New York, N. Y.; Hickley Contracting Co., 841 Broadway; four-story garage, 75x100; $100,000.

New York, N. Y.; John Hant, 230 W. Burnside avenue; one-story private garage, 18x20.

New York, N. Y.; Scedway Realty Co., 31 Nassau street; one-story garage, 82x99; lessee, Rothbardt Garage Operative, Inc., 1411 Grand Concourse.

New York, N. Y.; James and Daniel Reardon, 237 South street; two-story commercial garage, 71x185.

New York, N. Y.; J. M. Felson, 1133 Broadway; one-story garage, 200x100.

New York, N. Y.; Charles B. Meyers, 1 Union square; two-story garage, 91x92; $10,000.

New York, N. Y.; Robert T. Green, 2 Columbus Circle; two-story garage, 58x98; $9500.

New York, N. Y.; P. F. Herpershansen, 43 Thompkins street; two-story garage, 62x100; $15,000.

New York, N. Y.; Josephine Schumacher, 176 E. 111th street; two-story garage, 100x150; $45,000.

New York, N. Y.; Barnard McZuillan, 305 W. 43rd street; one-story public garage, 75x100; $12,000.

New York, N. Y.; Newat Realty Co., 200 Broadway; one-story public garage, 100x100; $15,000.

New York, N. Y.; Klein & Jacobs, 605 W. 131st street; one-story garage, 79x100; $14,000.

Syracuse, N. Y.; G. Centora, 212 Burnet avenue; one-story brick garage; $3000.

Syracuse, N. Y.; Dr. A. J. Campbell, 819 E. Onondaga street; one-story garage; $6000.

Yonkers, N. Y.; Alfred S. Burgess; one-story garage at 128-30 McLean avenue, 59x27.

Charlotte, N. C.; N. J. Sherrill; two-story garage, 46x170; $15,000.

Winston Salem, N. C.; C. N. Thomas & Co.; one-story garage, 50x54; $3000.

Fargo, N. D.; G. Matthews and F. Butler; one-story garage, 75x140; $50,000.

Akron, O.; August C. Miller; one-story public garage, 50x80; $8000.

Akron, O.; Friedman Brothers; one-story garage, 21x22; $3000.

Akron, O.; John H. Fitt, care Union Lumber and Coal Co., Sewitzer avenue and South street; one-story garage, 20x20; $3000.

Cincinnati, O.; W. W. Baxter, Lincoln Inn Court; one-story garage, 20x37; $1200.

Cincinnati, O.; Mrs. James Gilligan; one-story garage at 208-14 George street; $13,500.

Cleveland Heights, O.; L. Specht, 642 Frankfort avenue; one-story garage, 20x45; $3000.

Cleveland, O.; Max Lees, 1529 E. 115th street; one-story private garage, 18x56; $3000.

Cleveland, O.; Motor Realty Co.; one-story garage at 1206-12 Huron road, 58x123; $25,000.

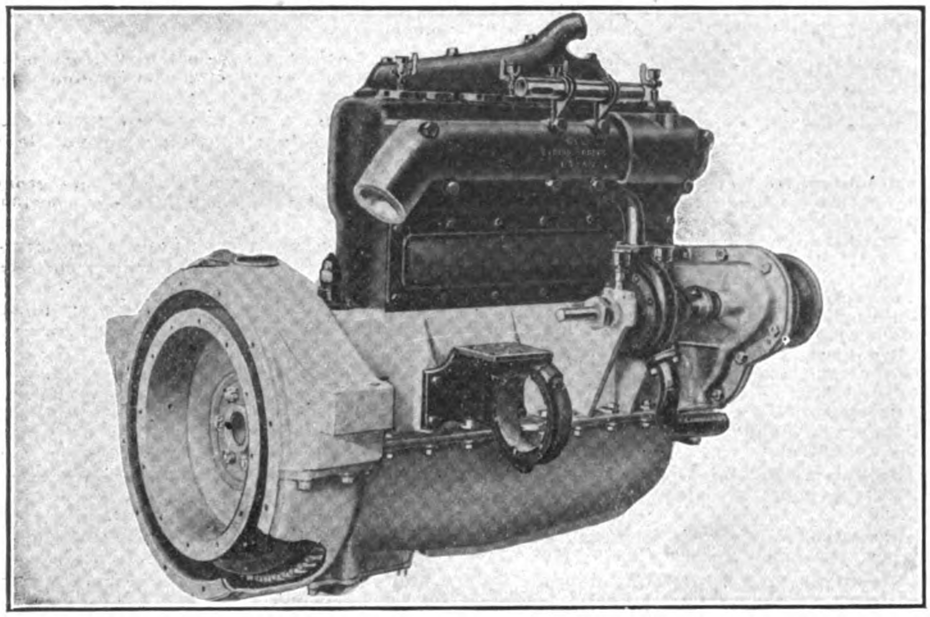
Cleveland, O.; American Fireproof Storage Co., 804 Illuminating building; one-story garage, 40x100; $15,000.

Columbus, O.; Belt-Franklin Auto Co.; one-story garage, 60x84.

Columbus, O.; Down Town Realty Co.; one-story garage, 52x148.

Columbus, O.; Reiser Garage; one-story garage at Main and Third streets; $20,000.

Columbus, O.; Lawrence Motor Co.; one-story salesroom at 209 E. Broad street, 36x106.



Model HU Buda Engine, Which the United States Government Has Been Licensed to Build in Other Plants During the War.

Eaton, O.; Standard Oil Co., Ohio Gas building; one-story gasoline filling station, 20x30; $3000.

Ironton, O.; Standard Garage Co.; one-story garage at 318-24 Erie street, 80x130; $155,000.

Lancaster, O.; L. E. Huddle & Co.; two-story garage, 82x111; $25,000.

Mansfield, O.; Richland County, care William Fisher, auditor; one-story garage, 25x38; $5000.

Chickasha, Okla.; Cowen & Green; one-story brick garage, 50x165; cement floor, skylight.

Weleetka, Okla.; Tri-State Garage; one-story garage, 75x150.

Elgin, Ore.; E. F. Hug; one-story garage, 60x100.

Bethlehem, Pa.; M. K. Huffman, care E. P. Wilbur Trust Co., Fourth street and Broadway, South Bethlehem, Pa.; one-story private garage, 20x22; $2000.

Charleroi, Pa.; A. P. Cooper, Uniontown, Pa.; one-story garage, 88x100.

Fort Mifflin, Pa.; Navy Department, Washington, D. C.; one-story garage; $4800.

Lancaster, Pa.; Mrs. Caroline H. Steinman; one-story garage, 60x80.

Mt. Lebanon, Pa.; Justus Wulert; one-story private garage, 20x20.

Pittsburgh, Pa.; J. S. Hershberger; one-story private garage, 20x24; $2000.

Pittsburgh, Pa.; H. Sampson, 433 Sixth avenue; three-story garage, 91x280; $100,000.

Philadelphia, Pa.; F. M. Venzre; one-story garage, 38x120; $8000.

Philadelphia, Pa.; Stability Motors Co., 1418 Walnut street; two-story auto sales and service station, 70x120.

Philadelphia, Pa.; R. A. and J. J. Williams, N. E. corner 22nd and York streets; one-story private garage, 22x99; $5000.

Philadelphia, Pa.; E. Allen Wilson, 1208 Chestnut street; seven private garages; one-story each, 16x20 and 22x36; $10,000.

Philadelphia, Pa.; S. Ladenson, 419-21 Carpenter street; one-story public garage, 62x100; $15,000.

Philadelphia, Pa.; William C. Carmen, 1220 W. Allegheny avenue; two-story garage, 50x200; $20,000.

Philadelphia, Pa.; J. W. Levin, 2434 S. Eighth street; one-story public garage, 37x136; $10,000.

Providence, R. I.; Morris Flink, 335 Canal street; one-story public garage, 30x90.

Providence, R. I.; Joseph Joslin and Issac Woolf, 309 Canal street; one-story and two-story public garage, 40x70 and 41x102; $20,000.

Westerly, R. I.; C. B. Lihne, care Mott B. Schmidt, 15 East 40th street; two-story private garage and chauffeur's quarters; $20,000.

Charleston, S. C.; Gas Engine and Electric Co.; one-story garage at 174 King street, 60x125.

Jave, S. D.; Hicks & Helm Garage; one-story garage, 28x48.

Sioux Falls, S. D.; F. J. Watson; one-story garage, 44x125; $5500.

Arlington, Tex.; Hugh M. and W. S. Moore; one-story fireproof garage; $6000.

Fort Worth, Tex.; M. R. Spooner; one-story garage at 1800-2 College avenue; $5000.

Fort Worth, Tex.; Texas Auto Supply Co.; two story automobile building, 50x100.

Hillsboro, Tex.; Grimes Garage and Machine Sohp; two-story garage, 50x100; $10,000.

Orange, Tex.; Hill Motor Co.; one-story garage and salesroom, 100x130; $30,000.

Burlington, Vt.; Champlain Motor Co.; two-story garage, 55x110.

Alexandria, Va.; Benjamin Wheatley, 807 King street; two-story garage and storage station, 40x75; $5000.

Weston, W. Va.; Louis Bennett; one and two-story garage, 72½x150.

Wheeling, W. Va.; Dr. Charles Keepol; two-story garage, 25x66; $5000.

Wheeling, W. Va.; F. M. Sheets Motor Co.; one-story garage; $2800.

Seattle, Wash.; M. F. Backus; one-story garage at Fourth avenue and Terrace street, 60x111; $50,000.

Tacoma, Wash.; R. T. Davis, Jr.; one-story garage at 728 Broadway; $18,000.

Tacoma, Wash.; A. Huth; one-story garage at 1304-6 S. E. street; $24,000.

Clinton, Wis.; Mrs. William A. Mayhew, Jr.; two-story garage, 50x70; $9000.

Cudahy, Wis.; Mike Vasas, 603 Bernard avenue; one-story garage, 45x120; $10,000.

Manitowoc, Wis; Henry Meisner; one-story garage, 41x82; $15,000.

Milwaukee, Wis.; Standard Oil Co.; Germania building; one-story filling station, 12x24; $3000.

Milwaukee, Wis.; Peter Mueller, 265 Howell avenue; one-story garage, 24x70; $2500.

Milwaukee, Wis.; Josephine Genengels, 530 Astor street; one-story garage, 21x31; $3000.

Milwaukee, Wis.; P. G. Schley, 586 First National Bank building; one-story double garage; $3000.

Milwaukee, Wis.; Tews Lime and Cement Co., North avenue and Bremen street; one-story garage, 50x60; $4000.

Milwaukee, Wis.; Samchulte & Webster, 415 Merchants and Manufacturers' Bank building; one-story garage, 50x90.

Milwaukee Wis.; Wadhams Oil Co., 359 Clinton street; one-story filling station; $2000.

New London, Wis.; G. Frieburger & Sons; one-story garage, 30x82.

Stevens Point, Wis.; Appleton Auto Co., 687 College avenue; one-story garage and salesroom, 30x50.

Superior, Wis.; Northwestern Oil Co.; one-story filling station; $2500.

CONTRACTS AWARDED.

Denver, Col.; A. Danielson, 1641 Vine street; one-story service station and repair shop, 102x120; for Guy Harrison; $10,000.

Bridgeport, Conn.; Marsh Brothers, 50 Buckingham avenue; one-story garage, 40x100; for Patrick J. Murphy.

Norfolk, Conn.; H. E. Blanchard, Arcanum building; one-story public garage, 40x60; for Martin Dodd; $7000.

Waterbury, Conn.; L. L. Archer; one-story public garage, 50x100; $20,000.

Wilmington, Del.; N. E. Johnson, 1411 Harrison street; 1¼-story private garage for Mrs. George Chambers, Gilpin avenue and Riverview road; $3000.

Atlanta, Ga.; The Flagler Co.; three-story brick garage, 200x50; for Mrs. Laura Armstrong; $50,000; lessee, J. W. Goldsmith, Jr., 233 Peachtree street.

Bainbridge, Ga.; Richardson Engineering and Construction Co.; three-story reinforced concrete garage; stucco exterior; for Bainbridge Motor Car Co.; $30,000.

Macon, Ga.; S. F. Fulghum Co.; one-story reinforced concrete garage, 87x210; for H. J. Lamar.

Alton, Ill.; E. W. Schuette, 406 E. Third street; one-story public garage, 60x150; for Schuette Motor Sales Co., Shields street and Broadway.

Chicago, Ill.; M. B. Beck, 1424 Solon avenue; one-story garage, 24x37.

Chicago, Ill.; John J. Purcell, 3064 W. Montor street; one-story garage, 50x120; $2500.

Chicago, Ill.; J. Weinstein, 117 S. Kedzie avenue; one-story garage, 89x125; $12,000.

Chicago, Ill.; William J. Scown Building Co., 37 Randolph street; one-story service station, 14x20; for Standard Oil Co., 72 Adams street; $2000.

Chicago, Ill.; G. Zimmerman, 5405 S. Winchester avenue; one-story public garage, 50x100; for A. Norgenroth, 1856 W. 58th street; $7000.

East St. Louis, Ill.; Truin Colnon Construction Co., Merchants' Laclede building, St. Louis, Mo.; 1½-story service building, 40x45.

Peoria, Ill.; R. Iben; one-story auto parking station for F. B. Ryals; $50,000.

Peoria, Ill.; V. Jobst & Sons, Lehman building: one-story public garage for George Jobst; $25,000.

Indianapolis, Ind.; Lynn B. Millikan, Lemcke Annex; one-story oil filling station, 20x30; for Western Oil Refining Co., Chadwick and Wilkins streets; $8000.

Mishawaka, Ind.; William Rosewarne, 118 S. Wenger street; one-story garage, 408x99; for L. Carlson, 124 Lincoln way W.; $2000.

Alwood, Ia.; John Olson, Rock Rapids. Ia.; one-story public garage, 50x120; for H. H. Kroeger.

Cedar Rapids, Ia.; Guarantee Contracting Co., Grandby building; two-story garage, 60x70; for Albert Rate, Iowa City, Ia.; $18,000.

Lindsborg, Kan.; August Palmquist: one-story garage, 57x140; for Peterson Brothers; $15,000.

Portland, Me.; Gailey & Small, 17 Boyle street; one-story garage, 40x50; for A. Goodsice, Fidelity building; $5000.

Berlin. Md.; Price Construction Co., Maryland Trust building, Baltimore; one-story public garage, 25x31; for Standard Oil Co.

Bethesda. Md.; Price Construction Co., Maryland Trust building, Baltimore; one-story public garage, 25x31; for Standard Oil Co.

Easton, Md.; Price Construction Co., Maryland Trust building, Baltimore; one-story public garage, 25x31; for Standard Oil Co.

Westminster. Md.; Price Construction Co., Maryland Trust building, Baltimore; one-story public garage, 25x31; for Standard Oil Co.

Mt. Airey, Md.; Price Construction Co., Maryland Trust building; one-story public garage, 25x31; for Standard Oil Co.

St. Michaels, Md.; Price Construction Co., Maryland Trust building, Baltimore; one-story public garage, 25x31; for Standard Oil Co.

Flint, Mich.; James M. Gable, 807 Margaret street; one-story filling station, 24x40; for Standard Oil Co.; $4000.

Highland Park, Mich.; Cooper Widerman Construction Co., 854 Penobscot building, Detroit; one-story garage, 40x90; for Mitschkun & Frisbee, 838 Penobscot building, Detroit.

Duluth, Minn.; Manhattan Oil Co., 592 Vandalia street, St. Paul, Minn.; one-story filling station, 26x45; $3600.

St. Charles, Mo.; Ringe Auto Sales Co., 128 N. Main street; one-story public garage, 58x228; $9000.

St. Louis, Mo.; August Winkel; one-story brick garage for Frederick Oetgen; $3000.

St. Louis, Mo.; G. B. Robertson, 2853 Botanical avenue; one-story garage, 37x40; for E. C. Heloner, 822 N. Third street; $2000.

St. Louis, Mo.; J. Charles Miller, 3500 Hebert street; one-story oil filling station, 25x25; for Texas Oil Co., Mercantile building; $10,000.

Cozard. Neb.; Oscar Almquist, Central City Neb.; one-story garage, 50x140; for M. Harrison; $15,000.

Kearney. Neb.; Edward Green. Seward. Neb.; one-story garage, 56x125; for J. W. Patterson; $10,000.

Omaha, Neb.; Investors Realty Co., 1313 City National Bank building; one-story garage, 100x132; $26,000.

Omaha, Neb.; Paxton Real Estate Co., 509 Electric building; three-story garage and salesroom, 112x140; $120,000.

Camden, N. J.; Herrsgen Brothers, 1140 Mechanic street; two-story garage, 42x90; $11,000.

Camden, N. J.; Guarantee Realty Co., 1204 Broadway; one-story garage, 10x20; for David Kisselman, 1019 S. Fifth street; $3000.

Camden, N. J.; Harry Vansant, Collingswood, N. J.; one-story garage, 10x12 and 11x32; for J. E. Freidick, N. E. corner Broadway and Atlantic street; $3600.

Brooklyn, N. Y.; Peter Donnellan, 146 Bond street; one-story garage, 25x100; for Patrick H. Quinn, 44 Court street; $5000.

Brooklyn, N. Y.; Jardon Co., Inc., 507 Fifth avenue, New York; one-story garage, 25x45; for Hazel Pastorfield; $2500.

Buffalo, N. Y.; Truss Concrete Steel Co.; Prudential building; one-story garage and storage station for Peerless Husker Co.; $3000.

Syracuse, N. Y.; Harry McGrath, 126 Hurton street; one-story garage for B. G. Harrington, State and Water streets; $17,000.

Charlotte, N. C.; R. L. Goode; one-story brick garage and storage station, 80x146; truss roof, concrete floor; for C. L. Alexander; $18,000.

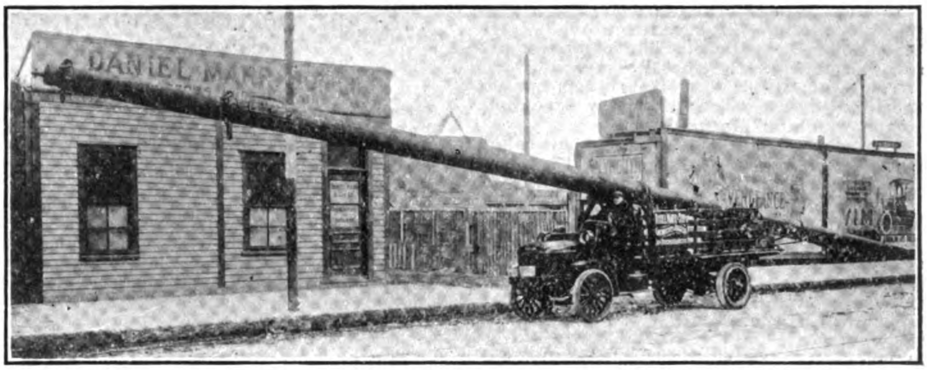
Akron, O.; Portage Construction Co., 579 Euclid avenue; one-story private garage, 21x22; for Friedman Brothers; $3000.

Cincinnati, O.; J. Coburn, 2103 Reading road; one-story private garage, 30x50; for John Wessell, McGregor and Symes streets; $2000.

Cincinnati, O.; Fred Weber, 1520 Gilpin avenue; one-story garage, 20x22; for Oscar Kuhn, 965 Lenox place; $1500.

Cincinnati, O.; J. T. McQuay, 6716 Winward avenue; one-story private garage, 20x20; for D. R. Addison, 5807 Bramble avenue; $1500.

Cincinnati, O.; O. McLennan Brothers, 40 Pickering building; one-story private garage, 22x26; for E. Brommer, 1841 Clarion avenue; $2200.



An Unusual and Difficult Load, a Two-Ton Brockway Loaded with an 85-Foot Derrick Mast and Boom, Carried from Boston to Providence.

Cincinnati, O.; H. Frossett, 2729 Arbor avenue; one-story garage, 13x20; for Albert Crocker; $1700.

Cleveland Heights, O.; Younger & Farmer, 1679 Crawford road; one-story garage, 25x36; for B. L. Britten, 2925 North Boulevard; $1600.

Cleveland Heights, O.; J. O. Linn, 5906 Dibble avenue, Cleveland, O.; one-story garage, 80x180; for Rose C. Dietz, 2765 Euclid boulevard; $12,000.

Columbus, O.; Charles W. Schneider & Son, 209 Ohio Electric Terminal building; one-story private garage, 21x26; for Albert O. Halliday; $2500.

Dayton, O.; G. H. Schartaer, 1832 S. Ludlow street; one-story oil filling station, 16x30; for Ohio Cities Gas Co.; First and St. Clair avenues; $3000.

Lowellsville, O.; Thomas Shehigh; two-story garage, 20x100; $10,000.

Toledo, O.; E. H. Voss, 428 Huron street; one-story garage, 20x73; for West Crescent Coal Co., 620 Madison avenue; $2500.

Toledo, O.; August J. Bade, 1226 Gordon street; one-story garage, 44x97; for Nathan Lewis; $10,000.

Youngstown, O.; F. C. Newman Co., 302 Nantucket building; one-story garage and storage station, 75x125; for Paradon Motor Freight Co.; $8000.

East Carnegie, Pa.; Columbia Street Co.; one-story garage, 45x125; $8000.

Darlington, Pa.; Frank Garvin, Beaver Falls, Pa.; two-story garage, 40x80; for Doaham Brothers; $5000.

McKeesport, Pa.; Edward A. Wehr, Highland building; one-story gasoline station, 20x25; for Atlantic Refining Co., Sixth avenue and Cherry streets; Pittsburgh; $15,000.

Philadelphia, Pa.; W. Macknet; one-story brick garage, 20x24; at 2014 Kinsey street; for Robert Lever; $700.

Philadelphia, Pa.; Henry P. Schneider; one-story brick garage, 15.6x30; north side St. Luke street, east of 17th; for Rosa L. Schneider; $800.

Philadelphia, Pa.; E. E. Hollenback, Inc.; one-story brick garage, 52x104; north side Sansom street, east 19th; for De Martelly & Co.; $4500.

Philadelphia, Pa.; George S. Roe; one-story brick garage, 29x32.6; southeast corner 68th and Yocum streets; for Ellen A. McCullough; $1500.

Philadelphia, Pa.; Philip Halbach Contracting Co.; one-story brick garage, 18x23; at 122 Wellens avenue; for J. Humsberger; $800.

Philadelphia, Pa.; Lewis Ahlers; one-story brick garage, 19.6x32; at 1811 Orthodox street; for W. Rose; $1200.

Philadelphia, Pa.; Frederick Elvidge & Son; one-story brick garage, 10.6x19; at 508 Harvey street; for H. L. Righter; $500.

Philadelphia, Pa.; A. Raymond Raff Co.; one and two-story garage, 40x120.7; northwest corner Fairmount avenue and Percy street; for Percy Garage; $10,000.

Philadelphia, Pa.; Max Chipiu; one-story brick garage, 37.6x150; northwest corner 49th and Aspen streets; for J. Krouse; $7000.

Philadelphia, Pa.; Charles H. Eckman; one-story brick garage, 24x26, with rear building, 21x52; east side Chew street, north Washington lane; for Cliveden Garage Co.; $2700.

Philadelphia, Pa.; William G. Uhler; one-story brick garage, 34x90, at 2012 South Broad street; for Emanuel G. Kobl; $3200.

Philadelphia, Pa.; Lewis Deitrich; one-story brick garage, 18x100, with wing 16x40; at 5316 Torresdale avenue; $25,000.

Philadelphia, Pa.; W. F. Koelle Co.; one-story brick garage, 18x70; south side Clifford street, east 31st street; $800.

Philadelphia, Pa.; Henry C. Dahl; one-story brick garage, 19x20; northwest corner Park avenue and Diamond street; for David Bradley; $1200.

Philadelphia, Pa.; Daniel McNamee; one-story brick garage, 21.2x22; at 2310 North Watts street; for L. W. Hirsh; $1000.

Philadelphia, Pa.; A. Hartman; one-story garage, 100x215; south side Chestnut street; north of 48th street; for J. W. Peoples; $40,000.

Scranton, Pa.; Salvatore Palumbo, 110 Washington avenue; two-story private garage, 25x30; for Michael Bosack, [illegible] Lackawanna avenue.

Newport, R. I.; Mrs. Rosina Dring, 28 Calvert street; one-story public garage; $5000.

Malakoff, Tex.; Walter G. Shadday, Athens, Tex.; one-story brick garage, 40x120; composition roof, concrete floor; for F. M. McGregor; $5000.

Wheeling, W. Va.; J. R. Butts, German Savings Bank; one-story garage, 33x[illegible]; for Shoekmann's Vienna Bakery, 2200 Main street; $11,000.

NEW BUSINESS CONCERNS AND CHANGES OF NAMES.

The Month's Record of Transfer of Ownerships and Opening of Garages, Agencies, Branches, Service Stations and Repair Shops.

RECENT TRANSFERS OF BUSINESS OWNERSHIPS.

Bakersfield, Cal.; W. F. Hubbard has become the sole owner of Hubbard's Garage, having purchased the interest of H. R. Kanode.

Taft, Cal.; J. W. Clemens and C. E. Haley have formed a partnership and will conduct a repair shop under the style of the Taft Radiator and Lamp Shop.

Arrowsmith, Ill.; W. C. Harrison has sold his garage to E. D. Ferris.

Fort Madison, Ia.; Carl Olbrecht has bought the Schulte Garage.

Greene, Ia.; Charles Hilldebrand has sold his garage to C. H. Williams.

Griswold, Ia.; The Taylor Motor Co. has leased the Bryant building and opened a garage and sales room for Peerless, King and Saxon cars.

Tennant, Ia.; Arthur Turk has bought the garage which was owned by Harry Wilson.

White Cloud, Kan.; Floyd McAllster has bought out a half interest in the Casteel Garage.

Boston, Mass.; The Howell Motor Car Co. has changed its name to the J. H. MacAlman-Howell Co. The company are the distributors for the Liberty.

Triumph, Minn.; A. A. Harris has bought the interest of his partner, Roy Strugeon, in the Triumph Motor Co.

Wheaton, Minn.; M. J. Lynch has taken over the Siemont Garage. A. E. Riche and Henry Schmitz will do repair work.

Geyser, Mont.; The Geyser Garage has been taken by Addy Brothers.

Park City, Mont.; John Barr has bought the mechanical department of the Trail Garage from Sam Flood.

Thompson Falls, Mont.; J. E. Jacke has bought the interest of W. N. Malberg in the garage.

Greenville, Mo.; Fred Champlin has bought the Highway Garage.

Hannibal, Mo.; A. B. Johnson has sold his interest in the Johnson & White Garage and it will be conducted under the name of White's Garage.

St. Louis, Mo.; The Park Automobile Co. has leased a sales room in the Henry Service Co. It will be used for Chalmers and Peerless cars.

Sidney, Neb; S. R. Perry & Sons have bought the Brewer Garage.

New York, N. Y.; The Circle Auto Supply Co., 1698 Broadway, has changed its style to Ryan & Hughes.

New York, N. Y.; The Kips Bay Garage Co. has leased the garage at 142 East 45th street. It is a five-story garage.

Glenfield, N. D.; Jens Larson of Curtenay, N. D., has bought the Glenfield Garage.

Golden Valley, N. D.; Paul Schmall has bought the J. F. Smith Garage.

Petersburg, N. D.; Martin Hildremyr will manage the Petersburg Garage Co. O. H. Reiton has retired.

Fortuna, N. D.; O. B. Congslie has bought the supplies and repair business of P. J. Quaine.

Lima, O.; The Dort Motor Co. has leased the garage which is being erected on Water street, near Elizabeth. It will be 100 by 50 feet and cost $10,000.

Toledo, O.; The Doan Motor Car Co. has taken over the retail branch of the Studebaker Corporation.

Bennington, Okla.; N. B. McClure has bought the Bennington Garage. The garage was formerly owned by John Baker.

Oklahoma City, Okla.; C. D. Lacy has bought the interests of O. T. Ramos in the New State Motor Co.

Oklahoma City, Okla.; The Mabry Garage Co. has bought Happy's Garage.

Dobton, S. D.; Fred Franke, Jr. has bought the E. Engman Garage.

Mitchell, S. D.; The Central Auto Machine Co. has bought the garage business of C. H. Blenkiron.

Chilton, Tex.; Gus Farris has bought the Chilton Garage from W. H. Calvery.

Quanah, Tex.; Andy Jay has bought the interest of Will Runder in the Panhandle Garage.

Seymour, Tex.; W. Gorman has sold his supply business to Ed. Webb.

Broadhead, Wis.; A. E. Stephens has sold his garage and Mitchell and Maxwell agency.

Darlington, Wis.; A. C. Poole has rented the Rodham Garage.

Kewaunee, Wis.; Frank Hirschfield has bought the vulcanizing business belonging to John Wierer.

Riverton, Wyo.; The Griffith Coal Co. has taken over the garage formerly conducted by J. C. Fowler. A repair shop will be run in connection with the garage.

AGENCIES, DEALERS AND SERVICE STATIONS.

Birmingham, Ala.; The Red Front Tire Shop has opened for business by J. R. Gordon at 214 South 20th street.

Bakersfield, Cal.; Getchell & Radke have opened sales rooms at 1678 Echster avenue and will handle Republic tires.

Exeter, Cal.; The Central California Electric Co. has opened a branch service station with C. W. Brady in charge.

Fresno, Cal.; Ham Brothers have opened a sales room for Case cars.

Fresno, Cal.; The Lyons- Morgan Hardware Co. has added a Goodyear tire service station.

Fresno, Cal.; J. A. Starkel has added an automobile repair shop and accessory store to his bicycle store.

Quincy, Ill.; The Fanschmidt-Marshall Co. has opened a new battery service station at Fifth and Vermont avenues.

Quincy, Ill.; The Overland Automobile Co. has taken the agency for the Brunswick tire.

Atlantic, Ia.; Bennett & Kilger have opened sales rooms and will handle the Kissel Kar.

Baltimore, Md.; Southern Auto Sales Co. has opened a used car exchange.,

Boston, Mass.; Farley & McNeill Co. has added accessories and tires to its line of electrical fixtures. The company has removed its stock to a greatly enlarged store, opposite the old place of business at 107 Federal street.

Boston, Mass.; The Pettingell-Andrews Co. has opened a new service station on Brookline avenue.

Pipestone, Minn.; Pipestone Motor Co. has opened as a branch store of the Northwestern Motor Co., Sioux Falls, S. D.

Gering, Neb; Ayres Brashear has sold his garage to Meynard & Frey.

New York, N. Y.; The Lane Motor Truck Co. has opened sales rooms at 2937 Broadway. This is a branch of the Lane Motor Truck, Kalamazoo, Mich.

Ravenna, O.; The Clark Wise Motor Co. has opened an automobile business in the Deleone block, 210 South Meridian street. The company has taken the agency for the Studebaker and Federal truck.

Bartlesville, Okla.; Carothers & Tarr has opened a salesroom at 212 East Third street. It handles the Stevens and Oldsmobile cars and maintains a service station with a complete line.

Oklahoma City, Okla.; The Severin Motors has opened a branch house at 314 North Broadway. It handles Grant cars and trucks.

Philadelphia, Pa.; The Great Western Automobile Radiator Co. has opened an accessory store and garage at 1805 Market street.

Huron, S. D.; E. R. Judy Motor Co. has opened a main office and sales room at Aberdeen, S. D. It handles the Maxwell car and supplies. E. E. Baddely is the sales manager.

Seattle, Wash.; E. M. Rusk has opened the Dreadnaught Tire Agency and will distribute Dreadnaught and Mohawk tires throughout the State of Washington.

Ft. Worth, Tex.; The Oriental Oil Co. has completed its new automobile station at Sixth and Throckmorton streets and is conducting an up-to-date gasoline and oil service station.

NEW BUSINESS LOCATIONS, REMOVALS AND IMPROVEMENTS.

Bakersfield, Cal.; The Boyle Tire Co. has moved to new quarters at 1719 Chester avenue.

Bakersfield, Cal.; C. W. Cole has opened the Midway Auto Radiator Works at 817 Eye street.

Bakersfield, Cal.; Williams & Karr have moved to the former Overland building on 19th street. They are Dort, Franklin, Liberty and King dealers.

Exeter, Cal.; The Exeter Tire and Vulcanizing Co. will move to new quarters.

Hanford, Cal.; Walter W. Cameron has moved his Hudson and Maxwell sales rooms to the Seventh Street Garage.

Tampa, Fla.; The Hillsboro Tire and Supply Co. has opened its place of business at 316 Madison street under the management of J. E. Malone. The concern handles Mason tires.

Salt Lake City, Ida.; The Sherman Automobile Co. has moved into its new home at 51 South street. More than 50,000 bins have been built on the main floor to accommodate a huge stock of parts.

Chicago, Ill.; The Willys-Overland Co. has moved to 2419 Michigan avenue.

Maryville, Ill.; The Shephard Garage will be enlarged and rebuilt. A brick repair shop will be added, 82 by 52 feet, and in front of this a storage battery station.

Council Bluffs, Ia.; M. L. Blair has moved to Automobile Row, taking quarters at 2417 Farnam street. The new firm handles the McFarlan and Empire cars for Wyoming, Nebraska and Western Iowa.

Salisbury, Md.; The Salisbury Battery Co. has moved into the brick building at the corner of Dock and Camden streets. Fulton Rounds and Howard South are the head of the concern.

Boston, Mass.; The Guaranty Motor Co. has moved to new sales rooms on Cummington street.

Springfield, Mass.; The Springfield Auto Co. has moved to new quarters.

Detroit, Mich.; The Bearings Service Co. is now located at Case and Willis avenues. The company was formerly located at Warren and Woodward avenues.

Detroit, Mich.; The Miller-Judd Co. has doubled its display room space through the purchase of the adjoining building. The new space will be given over to the sale of used cars.

St. Louis, Mo.; The Craig Auto Tire Co. has opened quarters at 2320 Jefferson avenue and will deal in seconds, wholesale and retail.

Fairbury, Neb.; Roy McCaslin has moved his tire repair shop into a new building.

Hebron, Neb.; Wilson's Garage will occupy the Hathaway building.

Omaha, Neb.; Nebraska White Co. has moved to 1407 Capitol avenue.

Ord, Neb.; The Ford Garage has moved into a new building.

Sidney, Neb.; Frank Nolan has leased quarters in the Bently building and will occupy the place with a tire service station and car storage.

York, Neb.; J. R. McCowan has leased quarters in the Heisler building and will open a repair shop.

New York, N. Y.; Callian Brothers, Inc., will move into the garage belonging to Klein & Jacobs at 166th street and Brook avenue.

La Moure, N. D.; The La Moure Garage has built on an addition.

Valley City, N. D.; The Shannon Battery Shop has moved from its former quarters under the American National Bank to a building on Main street.

Columbus, O.; J. W. Baker has moved to a new sales room and service station at 250 North Fourth street.

Philadelphia, Pa.; The Central Motor Tire Co., now at 11 South 18th street, will move to new quarters at 1801 Market street.

Pittsburgh, Pa.; The Painter-Dunn Co. will erect a two-story concrete and brick addition to the big garage on Cantor avenue, opposite Millvale avenue. The addition will cost $8500.

Washington, Pa.; Morris Street Garage is preparing to enlarge business by the establishment of a battery service station.

Pageland, S. C.; The City Garage is moving into new quarters.

Watertown, S. D.; The Platts Automobile Co. has moved its headquarters from Huron to Watertown and opened offices on the first floor of the Tarbell block.

Houston, Tex.; The Philadelphia Battery Service Station has moved into the former home of the San Jacinto Motor Car Co. at 911-15 San Jacinto street. The company has installed a complete shop equipment for any kind of battery service.

Tulia, Tex.; The Cooper Garage Co. has built an addition to its garage.

Everett, Wash.; The Burke Motor Car Co. has made extensive improvements in its sales rooms and has added an accessory department. The company has also taken on the Roamer and Hupmobile cars.

Seattle, Wash.; The Bardshire Motor Co. has moved to a new building which contains display rooms, general offices, service department and shop.

Seattle, Wash.; The Pacific Retread and Vulcanizing Works has opened quarters at 601 Pike street.

Spokane, Wash.; The Motor Truck and Tractor Co. has moved to the building of the Sieler Auto Co., 1017 Sprague avenue.

Spokane, Wash.; The Spokane Auto Co. has opened new quarters at 820 Second avenue.

Wenatchee, Wash.; The Interior Rubber Co. has opened new quarters in the Central building.

La Cross, Wis.; The Rybold Auto Co. has leased the garage and service station at 306 South Fourth street.

Watertown, Wis.; The Monarch Tractor Co. will build additions to its machine shop and assembling building to cost $20,000.

FACTORIES, GARAGES AND REPAIR SHOPS.

Bakersfield, Cal.; Meagher & Co. have opened a repair shop and vulcanizing plant at 1511 11th street.

Fresno, Cal.; Deron Writer has opened a repair shop at 461 Eye street.

Hanford, Cal ; Spear Brothers Auto Co. have leased a new building at Irwin and Eighth streets.

Taft, Cal.; A. A. Ayers has opened a repair shop on Centre street.

Wilmington, Del.; The Bowe Carriage Co. has opened a repair shop and overhauling business for motor vehicles.

Malad City, Ida.; The Evans Co-Operative Co., 100 Main street, has been appointed Willard battery agents and will conduct a service station.

Decatur, Ill.; H. S. Shurts has opened a new garage and sales room on North Main street. He will sell Gordon and Briscoe cars.

Fort Dodge, Ia.; The Rehder Cadillac Co. has opened its new building.

Quincy, Ill.; The Spring Street Garage Co. is building a new garage at 510 Spring street, where it will sell Grant and Lexington cars.

Lytton, Ia.; Rolland Skinner has opened a repair shop.

Marshalltown, Ia.; The Indian Oil Co. has opened a service station.

Holton, Kan.; E. W. Hamilton has opened a repair shop.

Boston, Mass.; The Farnham & Nelson Co. will erect a large factory between Roslindale and Forest Hills for manufacturing automobile bodies. The new plant will cost $100,000.

Detroit, Mich.; The Wetmore-Quinn Co. has opened a branch store at 855 Woodward avenue.

Luverne, Minn.; Paul S. Walters is building a new garage on Cedar street. It will be 100 by 125 feet and made of brick.

Marshall, Minn.; Robert Moore will open a plant for rebuilding tires.

Pine City, Minn.; Paul Perkins has built a new garage.

Marceline, Mo.; H. E. Darby has opened a vulcanizing and repair shop.

Albion, Neb.; Albion Independent Oil Co. has built a new garage.

Gretna, Neb.; Herman Warner has opened a repair shop.

Grand Island, Neb.; The Paine Garage is being remodeled.

Omaha, Neb.; The Davenport Garage has opened at 18th and Davenport streets. It has a floor space of 4200 square feet and will be used as an automobile market.

New York, N. Y.; The Healton Garage Co. will erect a one-story garage at Seventh avenue from 150th to 151st street. It will be modern, fireproof and cost about $60,000.

Steele City, Neb.; F. V. Lowe has opened a repair shop.

New York, N. Y.; Max Hoffman will erect a one-story brick garage at 251 Fox street. It will be 100x104.4 feet and will cost $12,000.

New York, N. Y.; Patrick D. Martin will build a garage at 230-252 East 45th street.

Chathan, O.; Butler Brothers plan to build a new garage.

Garber, Okla.; The Garber Auto Supply Co. has finished building a new garage.

Stigler, Okla.; Elmer Lantz is building a new garage.

Oxford, Pa.; Walter H. Armstrong, Fourth street, is building a garage on Myrtle street.

Philadelphia, Pa.; M. Durkin has opened a garage on Courtland street.

Philadelphia, Pa.; H. H. Paul has opened a garage on Market street.

Union, S. C.; W. H. Rasor has opened a garage. He will handle cars and sell accessories.

Hartford, S. D.; Hanson & Haugen will build a new garage and blacksmith shop. The new building will be 80 by 90 feet and will be fireproof.

Lake Creston, S. D.; W. M. Harris is now open for business in his new garage.

Sioux Falls, S. D.; F. J. Watson has opened a new garage.

Vancouver, Wash.; The C. L. Ross Automobile Co. has opened and will handle Hudson and Maxwell cars. The company's main office is in Portland, Ore.

Milwaukee, Wis.; The Boynton Auto Co. will erect a $25,000 concrete garage. It will be 60 by 120 feet and two stories high.

Neenah, Wis.; Engle Brothers have opened a shop and will specialize in repainting and trimming and other refinishing work on motor cars and trucks.

TRADE INFORMATION EXCHANGE

A National Clearing House of the Trade's Needs for Manufacturers, Jobbers and Agents

SPECIAL OPPORTUNITY.

North Wilkesboro, N. C.; Smoak Brothers, corner B and 10th streets, would consider the agency for Dodge Brothers car in the territory of Wilkes county.

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Jacksonville, Ill.; The Hass Electric and Manufacturing Co., 314 State street, is anxious to secure anvils, batteries, bulbs, bumpers, carburetors, chains, charging apparatus, paints, seats, tires, wrenches and special bodies for commercial cars.

Monroe, La.; S. C. Blackmon is interested in air pumps, bodies, bumpers, cabinets, carburetors, chains, charging apparatus, dynamos, fenders, gasoline, jacks, lamps, printed matter, searchlights, seats, shock absorbers, speedometers, springs, storage systems, tanks, tire accessories, tires, tops and parts, windshields and special bodies for pleasure and commercial cars.

North Wilkesboro, N. C.; Smoak Brothers, corner B and 10th streets, are in the market for air compressors, air pumps, asbestos, autogenous welding equipment, batteries, belts, bodies, bulbs, bumpers, cabinets, cable, castings, celluloid, cements, chains cloth, coils, commutators, compression gauges, cones, connectors, cranes, curtains, cushions, cylinder machines, dimmers, doors, emblems, fans, fasteners, fenders, fire extinguishers, gaskets, gauges, glass, goggles, graphite, greases, grinders, hammers, headlights, horns, hose, hubs, hydrometers, ignition, indicators, jacks, lamps, locks, lubricators, metal parts, meters, measuring instruments, mufflers, nuts, odometers, oils, packing, paints, pans, patches, pinions, pins, pistons, platinum, plugs, polishes, primers, pumps, punches, races, racks, radiators, ratchet drills, recording time clocks, reamers, rests, rims, rods, rubber, searchlights, seats, shock absorbers, soaps, speedometers, springs, special bodies for passenger and commercial cars, storage systems, strainers, tape, terminals, testers, timers, tire accessories, tools, tops and parts, trimmings, tubing, turntables, upholstery, valves, vaporizers, voltmeters, vulcanizers, waste, wheels, windshields, wrenches. The products are to be used for selling and shops.

Mt. Vernon, N. Y.; Allied Auto Electric Co., Inc., would like to secure air compressors, belts, bulbs, bumpers, carburetors, goggles, horns, hydrometers, maps, mechanical starters, mufflers, radiators, searchlights, shock absorbers, tire accessories, tires, tops and parts. The products are to be used for resale.

Auburn, Wash.; Fairchild Motor Co. is in the market for anti-rattlers, bumpers, whistles. „

No Hope Now to Compel Manufacturers and Jobbers to "Shinny on Their Own Side."

By ELTON J. BUCKLEY.

The following letter, just received from a retail merchant in Illinois, is of interest, though obviously name and address must be suppressed:

———————, Ill.

* * * The ——— retailers of this section are very hard pressed just now by jobbers' competition. A large percentage of the wholesale dealers of ——— and ———, which supply our territory, will solicit our trade and at the same time the trade of large consumers, which rightfully belongs to the retailer. We have plead with them and even threatened them through our organization, but with very little effect. Some of them stop for a time, but they get back as soon as they think we are not looking. We also have manufacturers' competition in a few cases, and have not been able to do anything about that, either. Also three mail order houses.

Our association is convinced that there must be some legal way to preserve the old lines of trade by making manufacturers and jobbers shinny on their own side, and sell their own customers and let ours alone. We are also against the mail order house, and believe there is some legal way to get back at the people that are selling them their goods. We believe from what we have seen of your writings on legal subjects that you may be able to put us where we can accomplish something. Anything you may write us will be greatly appreciated by all of our members.

L. F. O.,
Secretary ———

I regret that I cannot say anything to this correspondent which will help him in the slightest degree. No one can, at least no one can help him do what he wishes to do. I can half help him by telling him that it is now an illegal and dangerous thing for merchants of any rank, for instance retailers in any line, to attempt to sew up their natural field of customers so as to keep out merchants of another rank, such as jobbers. It is also illegal and dangerous to attempt to keep manufacturers from selling to mail order houses, or to threaten to impose, or actually impose, in any systematic, organized way, a penalty, such as blacklist or boycott, upon manufacturers who do sell mail order houses, or upon jobbers who sell consumers.

In the very same mail which brought this letter came the official report of a case which has just been decided by a United States court for a western district. The facts of the case are practically identical with the situation outlined by the above correspondent, and the law laid down is therefore directly applicable.

The case I refer to hinged upon the efforts of a combination of lumber retailers to (1) keep wholesale dealers from selling consumers; (2) keep manufacturers from selling mail order houses, and (3) force consumers to buy of the retailers nearest them. To accomplish these purposes, a very elaborate system had been built up which was extremely successful, to judge from the following description of it by the president of the association: "We are today acting in unison with 15 other retail associations representing 5000 yards, making with our own a total of 7200 yards, covering territory extending from the western slope of the Alleghenies on the east to the eastern slope of the Rockies on the west, and from Winnipeg down to the 'Sunny South by the sea.' In this vast territory it is estimated that of all the lumber used in the building trades, 94 per cent. of it is confined to its proper channels, reaching the consumer through the retail yards."

This scheme was based on a contention with which a large number of merchants in all lines agree, viz., that the manufacturers' only legitimate customer is the jobber, the jobber's the retailer, and the retailer's the consumer. Also that the mail order house is nothing more than a poacher, that it should not be permitted to intrude into everybody's territory to compete with established retailers, and that manufacturers who sell mail order houses are unfriendly to the trade.

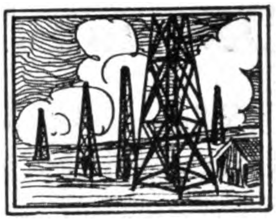
The lumber retailers built up a strong and careful scheme to carry out this contention, the essential part of which was the periodical publication in various ways of the names of wholesalers who sold consumers, the names of retailers who went into other retailers' territory, and the names of manufacturers who sold mail order houses. This was so the fair retailers could boycott the unfair jobbers who sold consumers; so the fair jobbers could refuse to sell the unfair retailers who sold other retailers' customers, and so the whole trade could boycott the unfair manufacturers who sold mail order houses. Naturally the same thing applied when the manufacturer sold consumers, as he occasionally did.

There was only one thing wrong with this scheme—it was unlawful. Its success was so conspicuous that the government prosecuted everybody connected with it in this western district for violating the anti-trust laws, and after the court saw the boycott notices and the blacklists the whole beautiful scheme crumbled and fell. The court granted an injunction against every person connected with it on the ground that "the circulation of these reports not only tends to directly restrain the freedom of commerce by preventing the listed wholesale dealers from entering into competition with retailers, but directly tends to prevent other retailers who have no personal grievance against listed jobbers and who might trade with them, from so doing, they being deterred solely because of the influence of the report circulated among the members of the associations"

When the court got through with this beautiful and most effective plan there was nothing left of it, and there will never be anything to it again. From this time on, a manufacturer, jobber or retailer may sell jobbers, retailers, consumers or mail order houses, any or all, and nobody who considers himself aggrieved can do anything about it except stop buying himself from the man he thinks has offended The minute he tries to get his fellow merchant to join him, which is the only way such a thing could become effective, he will run into the law. Henceforth there are no lines between the different branches of the trade which cannot be obliterated at the will of anybody.

(Copyright, April, 1918, by Elton J. Buckley.)

Securities and General Materials Markets



Automobile Securities Quotations

	April 11 Bid	April 11 Asked	May 9 Bid	May 9 Asked
Ajax Rubber Co	52	53	54	58
J. I. Case T. M. Co., pfd	83	86	84	86
Chalmers Motor Co., com	6	8	5½	8
Chalmers Motor Co., pfd	30	40	30	40
Chandler Motor Co	82	85	79	80
Chevrolet Motor Co	119	120	119	123
Fisher Body Corp., com	33	35	33	35
Fisher Body Corp., pfd	76	83½	82	87
Fisk Rubber Co., com	50	53	50	53
Fisk Rubber Co., 1st pfd	98	103	98	103
Fisk Rubber Co., 2nd pfd	70	75	70	75
Firestone Tire & Rubber Co., com	92	95	93	96
Firestone Tire & Rubber Co., pfd	96	98	94	96
General Motors Co., com	118	121	115	117
General Motors Co., pfd	80½	82	78¾	79½
B. F. Goodrich Co., com	43	45	43	44½
B. F. Goodrich Co., pfd	99½	100½	95	100
Goodyear Tire & Rubber Co., com	136	139	144	149
Goodyear Tire & Rubber Co., pfd	97	99	96	98
Grant Motor Car Corp	3	4	3¼	4¼
Hupp Motor Car Corp., com	3	3½	2¾	3½
Hupp Motor Car Corp., pfd	84	88	79	85
International Motor Co., com	22	26	22	25
International Motor Co., 1st pfd	52	58	50	58
International Motor Co., 2nd pfd	23	28	23	28
Kelly-Springfield Tire Co., com	41	43	41	43
Kelly-Springfield Tire Co., 1st pfd	75	85	79	85
Lee Rubber & Tire Corp	12¼	13½	14	15
Maxwell Motor Co., Inc., com	25½	27	24¾	25
Maxwell Motor Co., Inc., 1st pfd	53	54	52	54
Maxwell Motor Co., Inc., 2nd pfd	19½	22	18	21
Miller Rubber Co., com	108	112	103	105
Miller Rubber Co., pfd	96	98	95	97
Packard Motor Car Co., com	92	97	95	105
Packard Motor Car Co., pfd	89	92	89	92
Paige-Detroit Motor Car Co	17	18	17	18
Peerless Truck Car Corp	14	16	12	14
Portage Rubber Co., com	104	107	107	109
Reo Motor Car Co	16	17	16	..
Saxon Motor Car Corp	6	9	7	9
Standard Motor Construction Co	12½	13	12	14
Standard Parts Co	54	56	56	58
Stewart Corp., com	40½	41½	36	37
Studebaker Corp., pfd	80	90	75	100
Swinehart Tire & Rubber Co	25	40	26	30
United Motors Corp	25¾	26	24	24½
U. S. Rubber Co., com	54¼	56	56	57
U. S. Rubber Co., pfd	103	105	102½	104½
White Motor Co	42	43	41	42
Willys-Overland Co., com	17¼	18½	17½	18
Willys-Overland Co., pfd	79	81	79	82

General Market Prices

	April 13	May 13
Iron, foundry, 1 X ton	34.00	34.50
Iron, foundry, 2 X ton	33.50	33.50
Iron, Bessemer, ton	35.20	35.20
Steel, Bessemer, ton	47.00	47.00
Copper, 100 lbs., electric	23½	23½
Lead, 100 lbs	7	7
Antimony	....	13⅛
Petroleum, Kan., cr., bbl	2.85	2.25
Petroleum, Pa., cr., bbl	4.00	4.00
Linseed oil, raw	1.50	1.55
Lard oil, prime	2.35	2.80
Fish oil, Menhaden, br	1.05	1.50
Cottonseed oil, bbl	....	....
Silk, raw, Japan	6.65	7.50
Rubber, fine, up-river, Para	61	68
Tire, scrap	4⅜	5¼
Steel, open hearth, ton	44.50	44.50

DOMESTIC CRUDE OIL PRICES.

The prices of crude petroleum at the wells during the middle of the month of May, were:

Pennsylvania dark	**$4.00**	Caddo, La., 38°	$2.25
Mercer black	**2.23**	Caddo, La., heavy	1.25
Cabell	**2.77**	Healdton	1.45
New Castle	**2.10**	Moran	2.25
Corning	**2.85**	De Soto	2.15
Wooster	2.68	**Strawn**	**2.00**
North Lima	2.38	Thrall	2.25
South Lima	2.38	Crichton	1.40
Indiana	2.28	**Canada**	**2.45**
Princeton	2.42	Humble	1.35
Somerset 32°	**2.60**	**Cal., 37 grav**	**1.32**
Ragland	1.25	Goose Creek	1.35
Illinois above 30°	2.42	Jennings	1.35
Kan. & Okla	2.25	Markham	1.35
Plymouth	2.25	Sour Lake	1.35
Corsicana light	2.25	Vinton	1.35
Corsicana heavy	1.30	Grass Creek	1.70
Electra	2.25	Elk Basin	1.80
Henrietta	2.25	Big Muddy	1.50

Naphtha.

	10-gal. drums Under 100 cases	100 cases and over
Benzine, 59-62°	45½	45
Stove	45¾	45¼
Auto, 68-72°	51¼	50¾
Naphtha, 73-76°	55¼	54¾

	In cans and cases Under 100	100-199	200-299
Naphtha	....	....	....
Benzine, 59-62°	33.46	33.15	22.96
73 a 76°	43.15	42.95	42.65
Stove	33.65	33.40	23.15
Auto, 68-72°	38.55	38.45	38.35

NEW YORK CITY PRICES.

New York City prices for petroleum and its products were:

Petroleum.

Crude, barrels, a gallon	17	Fuel, 31°	15
Refined, barrels	13	Fuel, 34°	15⅛
Tank wagons delivery	11		

Naphtha.

Garages	24	V. M. & P. deod., in steel	23
Consumers (steel barrels)	26	V. M. & P. deod., in wood	28
Consumers (wood barerls)	30		

Gasoline.

Gas machine, steel	41	68-72° steel	30
72-76°	32	68-72° wood	36
72-76° wood	39	70-72° wood	37

Foreign Trade Opportunities

(Address Bureau of Foreign and Domestic Commerce, Washington, D. C., Giving Number, Which Will Forward Correspondence, Unless Otherwise Stated.)

26,819. A man in Algeria wishes to buy machines for making bricks and tiles; machines for making plaster and working plaster products; aerial cable for handling mineral and other products; and one five-ton motor truck. Correspondence should be in French. Reference.

26,850. A French firm in Argentina desires to be placed in communication with American manufacturers and exporters of hardware, tools, domestic utensils, agricultural implements, bicycles and accessories, motor car accessories and other articles similar to these.

26,899. An agency is desired by a man in Algeria for the sale of automobile horns, tires, joints, all kinds of automobile accessories, industrial oils and greases, naphtha and gasoline. Correspondence should be in French. References.

26,938. The Brazilian representative of a firm in Switzerland wishes to represent American manufacturers and exporters of chemical products for industrial purposes, such as sulphate of soda, acetic acid, carbolic acid, carbonate of soda, cream of tartar, etc.; construction materials, automobile accessories, textiles, wire, barbed and plain; sheet tin, etc. Payment will be made in New York for the account of the Swiss firm. Correspondence should be in French, Spanish or Portuguese. References.

Decision in Resale Price Fixing

When an Article Has Passed From Maker to Purchaser Latter Owns It and Can Sell at Any Price Above Cost.

For a considerable time there has been a controversy throughout the country over the question of the right of manufacturers, wholesalers, etc., fixing resale prices at which their articles could be sold, and the right to maintain such resale prices has been contended for by them, and the question whether such right exists has been brought before the Federal Trade Commission numerous times.

Many hearings have been had, many complaints have been made and much consideration has been given to the subject by that commission. Many business concerns have been refusing to sell to customers who would not agree to maintain the resale price fixed by the seller.

The Federal Trade Commission has just disposed of the first of these cases in which complaints have been issued charging violations of law through fixing the resale price of articles, and an order to cease and desist from this practise has just been issued by it in the case of Chester Kent & Co., Inc., of Boston, manufacturers of proprietary medicines.

Attorneys for the company admitted that in the past the practises complained of had been in use. The order, the first in cases of this character, forbids the company to—

(a) Indicate to dealers the prices for which its proprietary or patent medicines shall be resold.

(b) Securing agreements from dealers to adhere to such prices.

(c) Refusing to sell to dealers who fail to adhere to such prices.

(d) Refusing to sell to dealers who fail to adhere to such prices upon the same terms as dealers who do so adhere.

(e) Furnishing any advantage to dealers who adhere to the resale prices, while refusing similar treatment to dealers who do not adhere to the prices.

This order of the commission follows the decision of the Supreme Court of the United States in the American Graphophone company case lately decided by it.

Some of the most distinguished lawyers in the United States have appeared before the commission to argue this question, as well as many of the leading business concerns of the country, some of whom have insisted that the maintenance of resale prices was proper, and others who have contended that it was not. Almost all of the large department stores of the country have been heard in opposition to it.

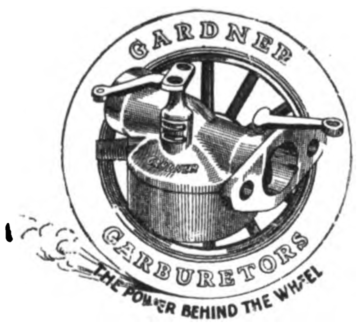
After full consideration the Federal Trade Commission has decided to issue complaints against all business concerns who refuse to sell unless the purchaser will agree to maintain a resale price fixed by the seller. The case just decided is the first formal finding by the commission to that effect.

When once an article has passed from the maker to a purchaser he owns it and the owner of such article may sell it at any price that he chooses provided he does not himself sell it at such price as to be below cost, and thus thereby enter into unfair competition with other retailers selling the same article.

This decision is going to be open to considerable controversy in relation to the subject matter thereof, and the matter will probably have to be settled by an act of Congress in the manner suggested by Mr. Justice Brandeis in his concurring opinion in the Supreme Court of the United States, in the case of the American Graphophone company. The Stephens bill, which is now in Congress, is in relation to that matter, but in the estimation of many business men and others it is thought to be broader than it should be. It may be that resale prices can be so regulated by placing the power somewhere protecting against unfair prices as to make it work equitably, and be a fair method of competition in commerce, but that question will undoubtedly have to be settled by congressional action.

GARDNER THERMOSTAT SELF-ADJUSTING CARBURETOR.

The Gardner Thermostat Carburetor, which is self-adjusting and can be fitted to a Ford car in 10 minutes, is designed to maintain the correct proportion of air and fuel to suit the varying speed or load of motor and it is free from moving or complicated parts. As it is self-adjusting it does not require any attention, being regulated by a thermostat, which is submerged in gasoline and controlled by its temperature, varying the feed according to the change in temperature.


GARDNER
CARBURETORS
THE POWER BEHIND THE WHEEL

It is small in size and the makers claim that it occupies the least possible space, has the least number of parts and weighs less than any other carburetor on the market. It is sold on a guarantee that it will give at least 25 per cent. more mileage, greater power and flexibility.

The manufacturers and distributors are the Gardner Carburetor and Brass Works, Summit Ave. and Wabash R. R., Detroit, Mich.

WISCONSIN AUTO CO WILL MAKE "SLIP ROOF OUTFITS."

The Wisconsin Auto Top Co., Racine, Wis., manufacturers of the Badger seat covers, are about to introduce to the trade a new type of automobile top covering in what they have termed "Slip Roof Outfits." These outfits are just what the name implies. They slip over the roof of the car and give an old, shabby top the appearance of newness at half the usual price of a new top. Each outfit consists of a new roof, quarters, back curtain with celluloid light and back stays all stitched and ready to slip over the old frame. They are absolutely accurate in fit, as they are cut after the same patterns employed by car manufacturers.

They simplify top renewals and at the same time represent a substantial saving. They are easy to install, anyone who can drive a tack being able to do the necessary work quickly.

NEW CATALOGUE ON COMMERCIAL BODIES.

The Parry Manufacturing Co. has completed the mailing of a very elaborate and comprehensive catalogue featuring their Parry body line, to all the light commercial truck dealers throughout the United States.

In appearance this catalogue is a masterpiece of engraving and printing—a catalogue that its beauty alone will keep on top of a desk. The illustrations and specifications of the various styles of Parry bodies are so arranged and explained in detail that any person can easily tell just what is included as regular equipment or extras.

NEW DORT CAR MODEL IS "FLEUR-DE-LYS" ROADSTER.

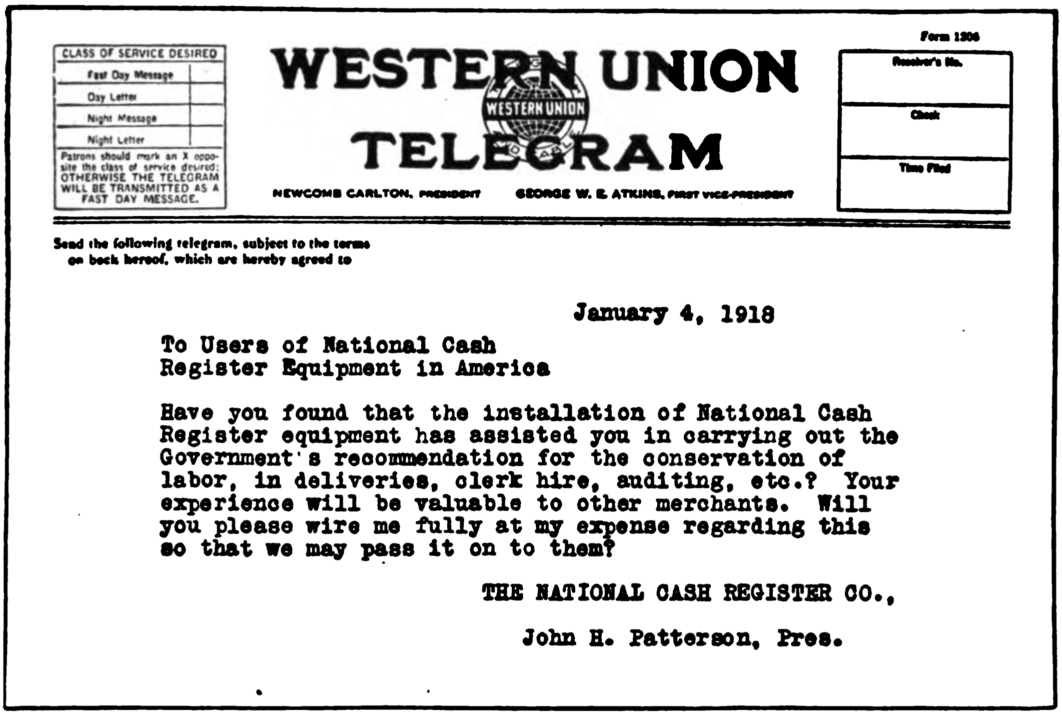
The Dort Motor Car Co. is marketing a new model of its "Fleur-de-Lys" roadster. It is a three-passenger car of the cloverleaf type, with divided front seats and a divan in the rear.

The lines of the new Fleur-de-Lys vary considerably from the preceding model. The most noticeable change is in the sill curve at the rear and increased room. The divan is wider and there is more leg room. The standard paint is gray body, hood and wheels, with a white stripe just below the sill. The fenders and radiator are black. It carries a mohair top.

The body is mounted on the model 11 chassis, with the new 3½x5 motor and the same other refinements brought out in the touring car chassis introduced last January.

BANKRUPTCY PETITION FILED.

An involuntary petition in bankruptcy has been filed against the Bour-Davis Motor Car Co. on behalf of Morton W. Smith & Co., Charles J. Bour and the Touzalin Agency.



CLASS OF SERVICE DESIRED	
Fast Day Message	
Day Letter	
Night Message	
Night Letter	

Patrons should mark an X opposite the class of service desired; OTHERWISE THE TELEGRAM WILL BE TRANSMITTED AS A FAST DAY MESSAGE.

WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

Form 1206

Receiver's No.

Check

Time Filed

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

January 4, 1918

To Users of National Cash
Register Equipment in America

Have you found that the installation of National Cash Register equipment has assisted you in carrying out the Government's recommendation for the conservation of labor, in deliveries, clerk hire, auditing, etc.? Your experience will be valuable to other merchants. Will you please wire me fully at my expense regarding this so that we may pass it on to them?

THE NATIONAL CASH REGISTER CO.,

John H. Patterson, Pres.

What American Business Thinks of N. C. R. Service in War Time

As an aid to compliance with the Government's request for the conservation of man power and motive power, the N. C. R. System has received a striking endorsement from American business.

The following excerpts from the hundreds of replies to the above telegram are from department stores, confectioners, butchers, stationers, druggists, grocers, garagemen and many more lines of business.

"We recommend National Cash Registers to any who wish to conserve."

"Cash registers save in auditing and cashier service."

"National Cash Registers and Electric Credit System cause customers to carry packages instead of asking for delivery."

"We recommend the cash register system to every merchant who desires efficiency and economical service in his store."

"The cash register gives correct records and is a great labor saver."

"Without registers we could not handle the business with present force."

"Your cash register has been a great help in systematizing our reports and records."

"Your product is essential to the conduct of our business."

"Cash registers speed up service to customers."

Whatever your business, the N. C. R. System will help to put it on a war-time efficiency basis.

For further information fill out the coupon and mail it today.

Dept. 3603 National Cash Register Company, Dayton, Ohio

Please give me full particulars regarding your up-to-date system for a Garage and Automobile Accessory Store.

Name____

Address______________________________________

Pierce-Arrow Co. Subscribe Nearly $1,000,000

One Employee Pledges Whole Salary and Takes Overtime Job to Secure Living Expenses.

The Pierce-Arrow Motor Car Co. in the Third Liberty Loan campaign subscribed nearly $1,000,000. At the close of the campaign it was found that the employees, numbering nearly 10,000, had rolled up a total of $563,500. This exceeded by far their records of the First and Second Liberty Loan campaigns.

The officers of the company responded no less generously in proportion, subscribing to $112,350 in bonds, while the company as a corporation subscribed to $250,000 worth of bonds. Including the $10,000 subscribed by the Employees' Benevolent Association, this brought the grand total to $935,650.

"The magnificent response of Pierce-Arrow employees in the Third Liberty Loan campaign was particularly gratifying," said Henry May, vice president of the company. "Not only did it proclaim to the business and industrial world that they stood ready to support their country in the fullest measure, but it demonstrated that the Pierce-Arrow spirit is thoroughly American.

"While practically every man and woman employed by the company eagerly assumed his or her full share of responsibility, there were a number of instances of unusual sacrifices that were notable. In one case, an employee of Italian descent, subscribed to bonds that necessitated devoting his entire weekly wages to make the percentage payments for them. To do this he made arrangements to work nights to supply him with immediate needs."

Those on the general committee were: Henry May, chairman; W. C. Wrye, H. K. Thomas, G. W. Cooke, F. B. Spencer, E. F. Himmele, F. C. Browne, Robert Gerlach, Walter Newsome, F. B. Hubbard, S. O. Fellows, C. I. Sheppy, C. D. Cowles, J. W. Henafelt, E. D. Morton, Miss E. Borbush and Miss A. L. Cowan.

WESTINGHOUSE EMPLOYEES RAISE $2,000,000 FOR LIBERTY.

A total of $2,144,800 subscribed by employees is the record of a 10 days' Liberty Loan Campaign in the organization of the Westinghouse Electric and Manufacturing Co. With 30,384 subscribers from the company's various plants and district offices, the quota set for this and the total subscription figures was largely exceeded.

Mass meetings at the noon hour addressed by four-minute speakers recruited from the shop employees were an important feature of the campaign. At one such meeting, held at East Pittsburgh works, several thousand people listened to Sousa's band and were addressed by Major Watt of the Gordon Highlanders. The Westinghouse and Scotch Kilties bands played at other similar meetings.

Due to the general enthusiasm and particularly to the efforts of the campaign committees, many departments were able to display "100 per cent." signs.

OVER 250 CHICAGO CONCERNS MAKE SHOWING OF 100 PER CENT.

Over 250 concerns made a showing of 100 per cent. or better in the Chicago trade during the campaign on the Third Liberty Loan. A subscription of 100 per cent. indicates that not only every employee has bought a Liberty Bond, but that a large amount has been sold to outsiders.

The Zinke Co. heads the list of motor car concerns with 300 per cent., while 22 manufacturers have showings of 100 per cent. or better, including the following: Stewart-Warner Speedometer Corporation, Vesta Accumulator Co., International Harvester Co., Elgin Motor Car Corporation, Van Coal Oil System, Fowler Lamp and Manufacturing Co., Commercial Truckmobile Co., Van Cleef Brothers, Kero-Karburetor Co., Hill Pump Valve Co., Johnson Automobile Lock Co. and Buell Manufacturing Co. The Stromberg Motor Devices Co., Findeisen & Kropf, Diamond T. Motor Car Co., Parrett Tractor Co. and Perry Auto Lock Co. are also well up in percentage.

INTERNATIONAL MOTOR EMPLOYEES GET $125,000.

Employees of the International Motor Co. have subscribed to more than $125,000 to the Third Liberty Loan. The company permits the workers to take out bonds in denominations of from $50 to $500, paying 10 per cent. a month.

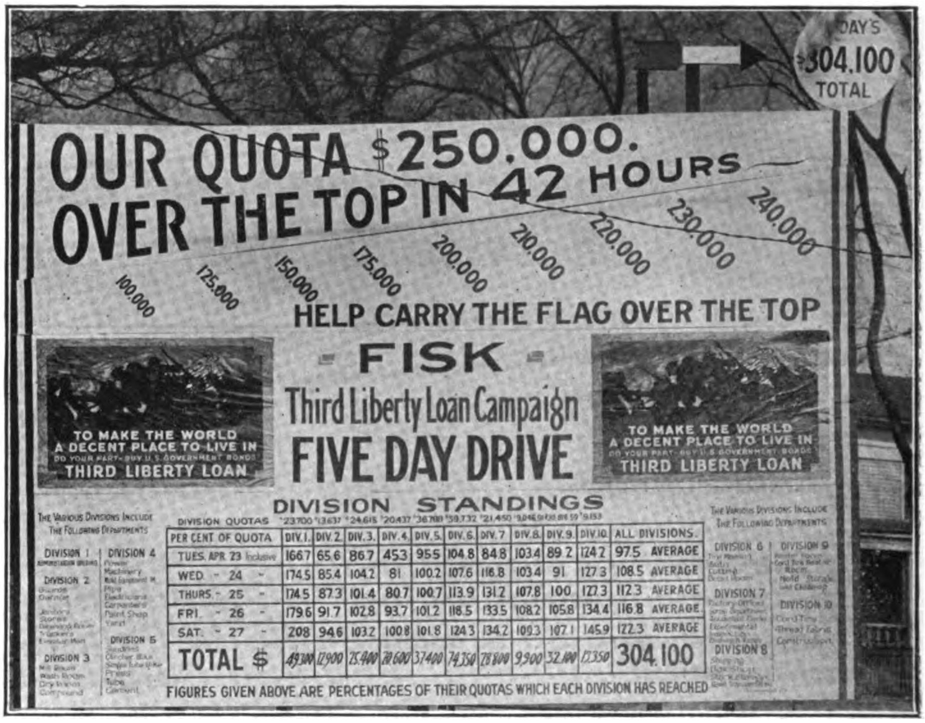
Fisk Liberty Loan Campaign Was Big Success

Quota of $250,000 Oversubscribed in 42 Hours. Total of $304,100 Sold.

A five-day Third Liberty Loan Drive, with a quota of $250,000 as the objective, was conducted at the plant of the Fisk Rubber Co., Chicope Falls, Mass. The quota was oversubscribed 42 hours after the campaign started and the subscription at the close of the campaign showed a total of $304,100.

The plant was divided into 10 divisions with a commander at the head of each division, assisted by captains and lieutenants. Each division was assigned a quota based on the number of employees in their divisions.

The campaign started with a dinner in the administration building dining room, which was attended by the commanders, captains, lieutenants and invited guests. Addresses were made by officials of the company and several local men, including an address in Polish. Entertainment was furnished by the Fisk quartet and the Shubert Male Quartet. Enthusiasm prevailed at the dinner and it was predicted that the quota of $250,000 would be oversubscribed with a rush. After the dinner the commanders of each division got their officers together and a canvas of the night shift started. So willing were the Fiskers to subscribe that 42 hours after the campaign started the quota was obtained, but the campaign continued on, ending with a total subscription of $304,100.

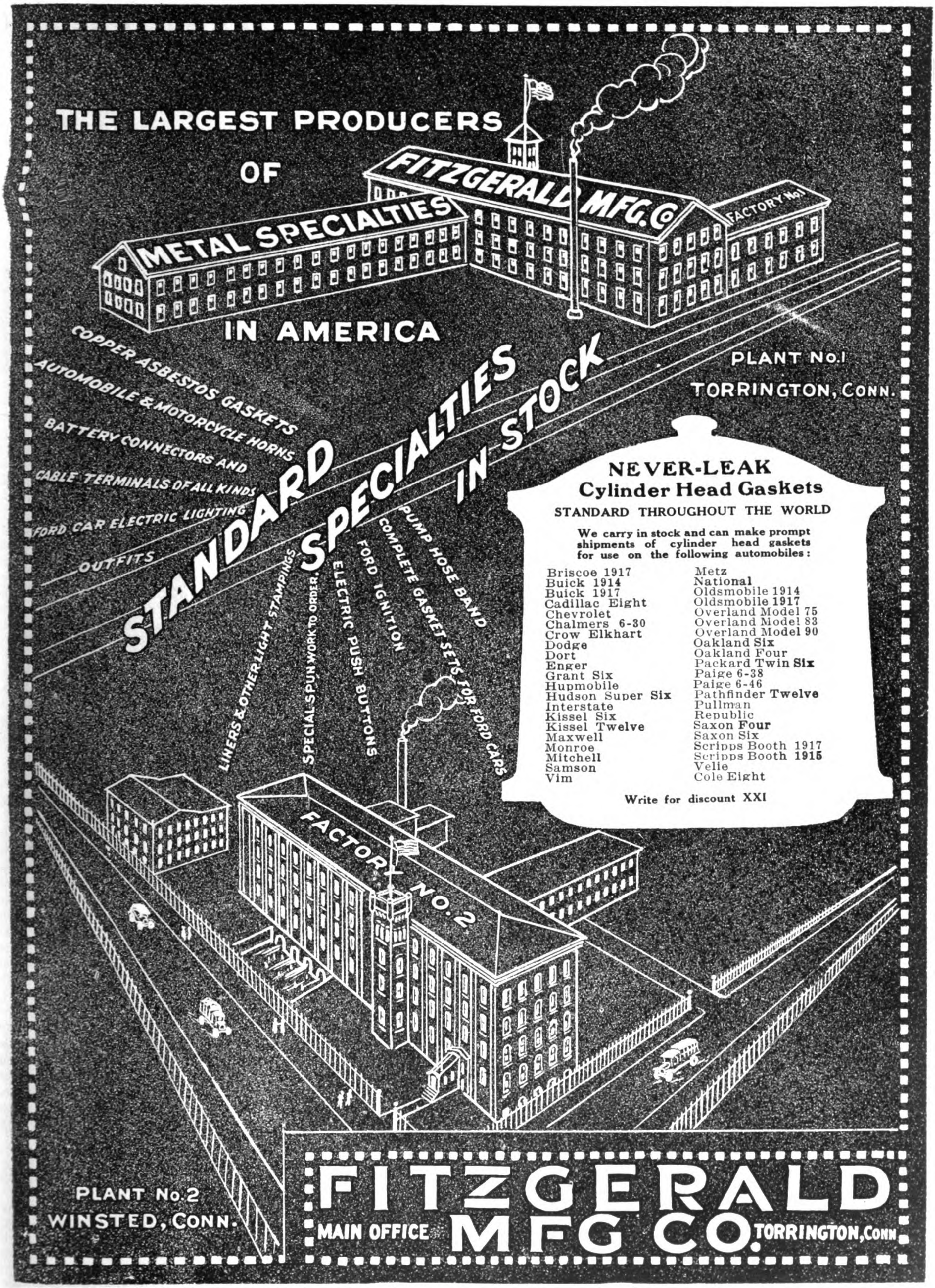

DAY'S
$304.100
TOTAL
OUR QUOTA $250,000.
OVER THE TOP IN 42 HOURS
100,000
125,000
150,000
175,000
200,000
210,000
220,000
230,000
240,000
HELP CARRY THE FLAG OVER THE TOP
FISK
Third Liberty Loan Campaign
FIVE DAY DRIVE
TO MAKE THE WORLD A DECENT PLACE TO LIVE IN
DO YOUR PART—BUY U.S. GOVERNMENT BONDS
THIRD LIBERTY LOAN
TO MAKE THE WORLD A DECENT PLACE TO LIVE IN
DO YOUR PART—BUY U.S. GOVERNMENT BONDS
THIRD LIBERTY LOAN
The Various Divisions Include The Following Departments
Division 1
Division 2
Division 3
Division 4
Division 5
The Various Divisions Include The Following Departments
Division 6
Division 7
Division 8
Division 9
Division 10

DIVISION STANDINGS

DIVISION QUOTAS	$23700	$13637	$24615	$20437	$36788	$59732	$21450	$9046	[illegible]	$9153	
PER CENT OF QUOTA	DIV. 1.	DIV. 2.	DIV. 3.	DIV. 4.	DIV. 5.	DIV. 6.	DIV. 7	DIV. 8.	DIV. 9.	DIV. 10.	ALL DIVISIONS.
TUES. APR. 23 Inclusive	166.7	65.6	86.7	45.3	95.5	104.8	84.8	103.4	89.2	124.2	97.5 AVERAGE
WED. " 24 "	174.5	85.4	104.2	81	100.2	107.6	116.8	103.4	91	127.3	108.5 AVERAGE
THURS. " 25 "	174.5	87.3	101.4	80.7	100.7	113.9	131.2	107.8	100	127.3	112.3 AVERAGE
FRI. " 26 "	179.6	91.7	102.8	93.7	101.2	118.5	133.5	108.2	105.8	134.4	116.8 AVERAGE
SAT. " 27 "	208	94.6	103.2	100.8	101.8	124.3	134.2	109.3	107.1	145.9	122.3 AVERAGE
TOTAL $	49300	12900	25400	20600	37400	74350	28800	9900	32100	13350	304100

FIGURES GIVEN ABOVE ARE PERCENTAGES OF THEIR QUOTAS WHICH EACH DIVISION HAS REACHED

The Big Score Board at the Plant of the Fisk Rubber Co., Chicopee Falls, Mass., Which Was Used to Record Progress of Liberty Loan Campaign.



THE LARGEST PRODUCERS OF METAL SPECIALTIES IN AMERICA

PLANT No. 1
TORRINGTON, CONN.

STANDARD SPECIALTIES IN STOCK

- COPPER ASBESTOS GASKETS
- AUTOMOBILE & MOTORCYCLE HORNS
- BATTERY CONNECTORS AND CABLE TERMINALS OF ALL KINDS
- FORD CAR ELECTRIC LIGHTING OUTFITS
- LINERS & OTHER LIGHT STAMPINGS
- SPECIAL SPUN WORK TO ORDER
- ELECTRIC PUSH BUTTONS
- FORD IGNITION
- COMPLETE GASKET SETS FOR FORD CARS
- PUMP HOSE BAND

NEVER-LEAK
Cylinder Head Gaskets

STANDARD THROUGHOUT THE WORLD

We carry in stock and can make prompt shipments of cylinder head gaskets for use on the following automobiles:

Briscoe 1917
Buick 1914
Buick 1917
Cadillac Eight
Chevrolet
Chalmers 6-30
Crow Elkhart
Dodge
Dort
Enger
Grant Six
Hupmobile
Hudson Super Six
Interstate
Kissel Six
Kissel Twelve
Maxwell
Monroe
Mitchell
Samson
Vim
Metz
National
Oldsmobile 1914
Oldsmobile 1917
Overland Model 75
Overland Model 83
Overland Model 90
Oakland Six
Oakland Four
Packard Twin Six
Paige 6-38
Paige 6-46
Pathfinder Twelve
Pullman
Republic
Saxon Four
Saxon Six
Scripps Booth 1917
Scripps Booth 1915
Velie
Cole Eight

Write for discount XXI

PLANT No. 2
WINSTED, CONN.

FITZGERALD MFG. CO.

MAIN OFFICE TORRINGTON, CONN.

Women Employees in the Paige Plant

As Shortage of Help Calls for Adjustments Women Do Inspection Work.

An economic by-product of the war that is of unusual significance and interest is the introduction of female labor in the great motor car factories. Brought about by necessity and the urge of patriotism, competent observers have come to the conclusion that it is proving to be an excellent development from every viewpoint.

"We are now employing a goodly number of women in our factory," says Harry M. Jewett, president of the Paige-Detroit Motor Car Co. "This situation has, of course, been caused by the war. With thousands of men drafted into the army and the extraordinary demand made on man power for purely industrial purposes, there has developed in Detroit alone a shortage of skilled labor now estimated by our Board of Commerce statisticians at 20,000, and which they say will soon reach 33,000.

"This condition has necessitated a readjustment. It gives trained workers a greater opportunity and it has opened the way for new labor in positions where training and skill are not so greatly needed. As a matter of fact it was absolutely necessary to get additional labor if the work on government contracts was to be kept up to schedule and also if our ordinary industrial activity was to be maintained at a reasonable rate of speed. Consequently the employment of women in certain departments was a logical and natural development.

CONTINENTAL GUARANTY CORPORATION DIVIDEND.

The Continental Guaranty Corporation, New York City, has declared a regular quarterly dividend of two per cent. for the quarter ending March 30, 1918, payable to stockholders of record as of April 27.

R. F. Wingard, vice president of Guaranty Banking Corporation of Chicago, has been elected an assistant treasurer of the company.

DEARBORN TRUCK CO. LOCATED IN NEW PLANT.

On May 1st the Dearborn Truck Co. moved into new and larger quarters at 2515-25 W. 35th street. The company purchased a modern three-story brick mill constructed manufacturing building at a cost of $105,000, with a large yard and private switch track.

The new property is 455 feet deep, with a frontage of 133 feet on West 35th street, giving a total ground space of over 60,000 square feet and more than quadrupling the present capacity of the old Campbell avenue plant. A 450 kilowatt power plant elevator and new machinery have been installed, as well as a modern sprinkler system for fire protection.

This move into larger quarters and purchase of their own building was made necessary by the greatly increased demand for Dearborn Truck Units and the national success of this company's product. As formerly the factory sales office will be located at the plant proper.

Speaking of the purchase of the new plant S. D. Porter, treasurer and general manager, said: "The success of the Ford Dearborn unit with the Ford passenger car has only been surpassed by the growing popularity of the Dearborn Universal Truck Units, which by reason of their being adaptable to all passenger chassis have greatly broadened the scope of our business.

ANNUAL MEETING OF JOSEPH DIXON CRUCIBLE COMPANY.

At the annual meeting of the stockholders of the Joseph Dixon Crucible Co., Jersey City, N. J., the following officers were re-elected: President, George T. Smith; vice presidents, George E. Long and J. H. Schermerhorn; secretary, Harry Dailey; treasurer, William Kiester, and assistant secretary and treasurer, Albert Norris. The directors re-elected are George T. Smith, George L. Young, J. H. Schermerhorn, Harry Dailey and Robert E. Jennings.

The American Graphite Co., a subsidiary of the Dixon company, also elected officers as follows: President, George T. Smith; vice president, George E. Long; treasurer, J. H. Schermerhorn; secretary, Harry Dailey.

TRICOLORED LIGHTS SHOW DIRECTION OF CAR.

An automobile direction indicator with which the driver of the car may warn traffic by means of colored lights of the direction he wishes to take, is the invention of Joseph Sanna-Ser of New Orleans, La., who has applied for patents.

This device consists of a reflector to fit over the ordinary automobile lamp casing, which is supplied with five electric lamp sockets. At the sides are fitted red bulbs, at the top a green one and at the bottom a blue one. In the centre is a white light. When in operation the while light shows all the time and the others are shown at the will of the car driver. Contemplating a turn to the left a red light is shown. The reverse would indicate a turn to the right. The green light showing above the white would indicate the car running at emergency and at speed while the blue light showing below the white would mean that a stop is to be made. A direction indicator at the back of the car would work in unison with the one over the headlight.

PILOT MOTOR CAR HAS BEEN ADVANCED IN PRICE $100.

The Pilot Motor Car Co., Richmond, Ind., has advanced the price of its four and five-passenger touring cars $100 to $1395.

Unfilled Orders At Continental Plant of $20,000,000

Engine Makers Receive More Federal Orders and State That Demand for Commercial Motors Is Increasing.

In a letter to the stockholders of the Continental Motors Corporation, signed by Secretary W. R. Angell, the following statement is made:

"The first half of the present fiscal year, April 30. Most of the war caused difficulties of last year, common to all manufacturers, such as shortage of labor and materials, were still further aggravated during the past six months by drastic railroad embargoes, curtailment of our electric power source and the Garfield closing order. However, these conditions have been met in a spirit of loyalty and patriotic duty and we are pleased to report that notwithstanding these unusual obstacles, our financial situation has been materially strengthened and our business outlook greatly improved.

"On April 30, 1918, the orders on our books in process of manufacture and unfilled, amounted in the aggregate to more than $20,000,000, a considerable gain over the situation at the beginning of the fiscal year. Large additional orders have been received from the government and the demand for commercial motors is steadily increasing."

"We are also pleased to announce that a dividend of 1½ per cent. has been declared by the board of directors, payable May 25, to stockholders holding common stock of record at the close of business May 18.

PRO-MO-TOR FABRICATING CORP. WILL HANDLE HERZ PLUG.

Pro-Mo-Tor Fabricating Corp. has been formed under the laws of New York for the purpose of distributing the Herz plug and other specialties made by Herz & Co. of New York. Its president is Russel A. Cowles, president of the Ansonia Clock Co., Metals Trading Corporation, and vice president of Ansonia Brass Co. Gustave L. Herz is vice president and general manager; Edward S. Rothchild is treasurer, and Mark Eisner secretary and counsel. Benjamin Liseberger is the remaining director. An energetic advertising and selling campaign will be inaugurated and the plant of the company has been considerably enlarged and new equipment acquired. It is planned to enlarge the scope of activity while preserving the recognized quality of plug.

LARGE INCREASE EXPECTED IN MICHIGAN REGISTRATIONS.

The number of licenses already issued in Michigan this year is almost as large as the total for 1917. Last year 206,000 cars were licensed, and the 1918 permits are already at the 206,000 mark. The estimated number for the year is 250,000.

Women Soon Grasp Fundamental Ideas of Their Work

In Industrial Work in Shop and Factory They Are Adapting Themselves to Conditions With Readiness.

"Women engaged in industrial work, in the shop and factory, are adapting themselves to conditions, and grasping the fundamental principles of their work with a readiness and efficiency that is truly surprising and gratifying."

The above statement from E. F. Primmer, manager of the employment department of the National Cash Register Co. of Dayton, O., is based upon close study and information obtained at first hand in one of the best known industrial concerns in this country. Mr. Primmer further said:

"While an untold number of reports have been made, the subject of women in industry is constantly enlarging. What seems strange and startling today is commonplace tomorrow. Government reports, magazines and newspapers daily are filled with statements about the ever widening horizon of women's work. Women are eligible for employment in so many unusual occupations that it would be difficult to briefly enumerate them. There seems to be, however, only one boundary to the field of women's activities, and that is imposed by physical limitations. No one will argue woman's physical equality.

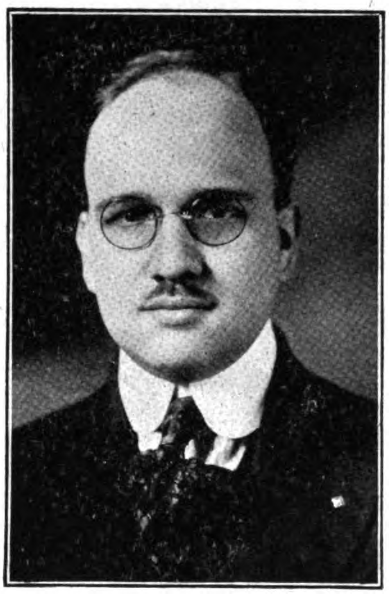
"In England, where there was a national desire to help meet the terrible emergencies of the war, women unwisely overrated their strength and set themselves at tasks which later proved detrimental to their health. American industry, profiting by the experience of England, wants continued output, rather than sporadic bursts of effort. Every man and woman in industry today, or in the future, must realize that it is the steady pull that will count at this crucial period in the world's history.

"While the great influx of women into industry was hastened by war conditions, yet it has not been wholly due to that cause. Armies of women are earning their own living because of the stress incident to the increased cost of all things. Hundreds of women have gone into the industries because they desire to be independent, and they do not regard their jobs or positions merely as bridges over the gap until marriage.

"Their induction into industry will have a beneficient, permanent result. It will mean the introduction in many factories of systems that are important to the health, safety and welfare of all employees. Improper surroundings will be eliminated and labor in general will be better off and better satisfied because of more desirable working conditions.

"There are, however, some things the women must be taught besides being given specific training for the specific work. They must learn to be regular in attendance, because they cannot expect to earn good wages unless they work steadily. They must adopt a business-like attitude toward their work, and regard their tasks as an opportunity for personal training, whether they expect to use their experience in the field of industry or elsewhere. They must regard health and hygiene as a business asset. Women are notably careless in matters pertaining to health, and frequently are unaware of the part poor health plays in reduced earnings or future happiness. They must be frank, straightforward and forego the privilege of having 'feelings.' If they remove the handicap of claiming privileges because of sex, they will find greater opportunities for advancement and sooner realize their ambition of equal work for equal pay.

"This company has always employed a large number of women for clerical and other work, and with very satisfactory results."



J. H. Barnett, Advertising Manager Parry Mfg. Co., Indianapolis, Ind.

DISCUSSION OF KEROSENE CARBURETOR POSSIBILITIES.

In a very interesting treatise on the practical application of a kerosene carburetor to the present type of automotive engine, the consulting engineer of the Findeisen & Kropf Manufacturing Co. of Chicago, makers of the Rayfield carburetor, states that the problem lies within the domain of the engine builder rather than the carburetor makers. Continuing, he says:

"It does not seem to the writer that the services which the carburetor renders will be any more difficult with kerosene alone than with kerosene plus a relatively infinitesimal quantity of gasoline which constitutes the present fuel. The services being largely proportioning the fuel, spraying it, partially evaporating it and delivering it to the manifold, and at that point the influence of the carburetor ceases. For that reason the makers of the Rayfield carburetor have given the kerosene carburetor only casual consideration.

"The only reason why kerosene costs less than motor fuel, from which it differs only in the fact that it does not contain any of the light fractions, is because of its comparatively limited use, and if its field were enlarged by a change in its composition, to permit its use in standard motors, or by the development of some carburetor to use it efficiently, its cost would mount to the price of alleged gasoline, because there is not enough of it, not already used in making motor fuel, to materially lower the price.

"The vaporization of kerosene is a question only of temperature, which must be maintained until the mixture reaches the cylinder. It can be introduced into the cylinder in a state of fog without so much heat, but the difficulties encountered in distributing a fog mixture uniformly are distressing. A device which will raise temperature without increasing the volume of a gas when under constant pressure is not within the scope of invention. It is a physical antagonism, so why waste good gray matter on it.

"If the expansion which is a corollary of sufficient temperature to vaporize kerosene is permitted, the engine will be large for developed horsepower, which is not desirable for portable engines using their own power to transport themselves.

"With water as a cooling medium and the consequent limit to cylinder temperature, the kerosene particles will coalesce under compression, no matter what form it is in when introduced into the cylinders, and the resulting leakage past the rings into the crank case and the washing away of the lubricant will be magnified.

"When the engine and carburetor experts get together, in company with an oil expert and a physicist, which four functions are rarely combined in one man, the problem of using the heavier fuel fractions alone, instead of a combination of the heavy and light fractions, may be worked out, provided it is worth while from an economic standpoint. We should like to be in such a conference, but to make it useful, we must not go to it with the prejudices of the uninformed layity as the moving spirit.

"Pardon the departure from the question, but it seems to be in order to suggest the soft pedal on a fuel, which at its best is about the worst, of which there is a certain unrenewed quantity that will give out some day, and begin to prepare for the future by advocating alcohol laws that will give us a cheap, clean, renewable fuel."

J. H. BARNETT HEADS ADVERTISING DEPARTMENT OF PARRY CO.

J. H. Barnett has recently been appointed advertising manager for the Parry Manufacturing Co., Indianapolis, Ind. Mr. Barnett was formerly associated in advertising work with the Prest-O-Lite Co., the Swinehart Tire and Rubber Co. and the Firestone Tire and Rubber Co.

"DEFENDER" PAYS FOR ITSELF IN COST OF THEFT INSURANCE.

"Insurance companies will pay owners of Ford cars not only for all expense they are put to in equipping their machines with Defender Auto Locks, but also give them an additional reward." According to the National Underwriter this is the way they do it: They will reduce the cost of theft insurance 15 per cent. each year. This reduction will save enough in two years time on any style of Ford car to pay for Defender Auto Lock. On some styles in some places the saving in one year will be equal and even exceed the cost of the lock. When the new "penalty premium" is made effective in the big cities the saving from a Defender Auto Lock the first year will be four times its cost.

"All of the saving after the cost of the lock has been equaled is a reward—a clear profit.

"Insurance men figure the insurable life of a Ford car is five years. During this time the machine depreciates in value and the amount of insurance consequently reduces. As it depreciates it becomes less of a prize for professional thieves and joy riders. Consequently the biggest reduction in the cost of insurance is made the first year and the smallest saving the last.

"In the larger cities of Chicago, Detroit and St. Louis, where the theft hazard is greatest, a Defender Auto Lock on a Ford car will save the following amounts over a five-year period. This is based on rates not affected by the new penalty charge.

Runabout	$5.80
Touring Car	6.00
Coupelet	7.45
Town Car	8.60
Sedan	9.25

"Outside of these cities, in the following states, a Defender Auto Lock on a Ford car will save the amounts shown below (Colorado, Iowa, Illinois, Indiana, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, Wyoming and Wisconsin):

Runabout	$4.05
Touring Car	4.20
Coupelet	5.20
Town Car	6.00
Sedan	6.50

"In the Pacific coast territory the reductions are not quite as large, as the hazard of thefts has not been so great. In the states and territories of Alaska, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, Utah and Washington the amounts saved by the Defender Auto Locks follows:

Runabout	$3.10
Touring Car	3.21
Coupelet	2.32
Town Car	2.67
Sedan	2.88

GRAPHITE FOR BEARING LUBRICATION.

When overhauling a car the wise motorist will not overlook the slightest chance for a needed repair or replacement. Especially now that a shortage of both new and used cars is certain, the greatest care in keeping the car in good running order is imperative. Some of the most important parts of a car and the parts most susceptible to wear if not properly watched, are the bearings. Bearing failures are usually due either to improper adjustment or improper lubrication. One of the first rules of bearing lubrication is that the lubricant must not contain any water, acid, alkali or any kind of abrasive. Such substances will greatly effect the highly polished surfaces of races, balls and rollers. According to engineers of the Joseph Dixon Crucible Co., the most satisfactory bearing lubricant is their mixtures of oils or grease and graphite. Selected flake graphite is used in Dixon's Graphite Automobile Lubricants because of its ability to fill up minute holes in the polished surface of the bearing. It is said of flake graphite thus used as a lubricant that "the more it is rubbed, the smoother it becomes." The oil or grease is used more or less as a vehicle to carry the graphite to the surface of the contact.

W. C. Boulcott, New Advertising Manager of Dayton Engineering Laboratories.

BOULCOTT NEW ADVERTISING MANAGER OF DELCO PRODUCTS.

W. C. Boulcott has been made advertising manager of the Dayton Engineering Laboratories Co. This is the third connection Mr. Boulcott has had with the Delco organization. Early in his business career he was a special service representative. Later he was recalled as assistant service manager. His record in this position caused him to be selected as manager of the Chicago branch of the United Motors Service. A few months ago he left the United Motors Service to join the Cadillac Motor Car Co. organization, and from this connection he returns to the Delco as advertising manager.

Mr. Boulcott's experience both in the service field and in the sales department of these organizations has fitted him admirably to take up the work in the advertising department.

GARCO DATA BOOKLET GIVES VALUABLE BRAKE INFORMATION.

The multitude of different cars on the market and the consequent variations of size in brake lining needed for renewals has been successfully answered in a booklet just published by General Asbestos and Rubber Co. of Charleston, S. C., manufacturer of "Garco" Brake Lining.

Listed in this booklet is the name of practically every passenger and commercial vehicle manufactured. The different models of each are listed by year or number. As it now stands the data given regarding the number of pieces of brake lining, the length, width and thickness needed for renewal, is thoroughly up-to-date and it is the intention of the company to issue revisions from time to time as may be found necessary.

The Garco Brake Lining Data Booklet is of convenient size to be slipped into a vest pocket. It will be gladly sent free of charge to any dealer or repair man requesting a copy. A number of pages have been furnished blank for use in making memoranda and in all this booklet will be found of real, practical value to any one interested in the brake lining renewal business.

GEORGE W. HOYT CHIEF ENGINEER OF OAKES CO.

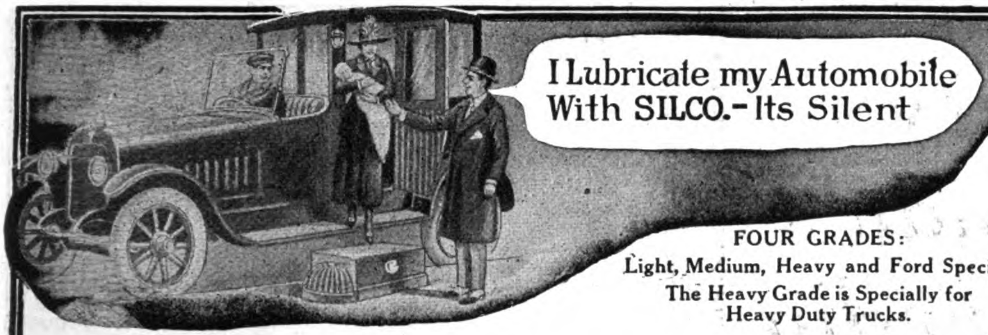
George W. Hoyt has resigned his position as chief engineer of the Harroun Motor Corporation to accept a position as chief engineer with the Oakes company of Indianapolis. Mr. Hoyt will have charge of engineering the development work in connection with the production of Oakes cooling fans. He was designing engineer for the Amplex Motor Car Co. for six years. He also served the Marmon company for three years in the same capacity. For two years he was assistant chief engineer for Maxwell and was associated with Mr. Harroun at the time the Maxwell cars were being raced.

WALDEN-WORCESTER REPRESENTATIVE MAKES SERVICE TRIP.

Mr. Charles A. Shedd, mechanical superintendent of the Walden-Worcester Co. of Worcester, is making a thorough trip of the western part of the country in the interest of the new "Walden Service." He is calling on all the large jobbers and service stations, solving any kinks that they may have, explaining the use and devising new methods for application of Walden-Worcester wrenches.

METAL HOSE AND TUBING CO. ERECTING ADDITION TO PLANT.

To meet the constantly increasing demand for its product and particularly to care for the requirements imposed by the war, the Metal Hose and Tubing Co., Brooklyn, N. Y., makers of Triplexd Gasoline Hose, has started construction on an addition to its plant. The building is of permanent construction in brick. The new space will give 5000 square feet more for manufacturing purposes and the factory will immediately require all of it.


I Lubricate my Automobile With SILCO.- Its Silent

AUTOMOBILE
SMOOTH **SILCO** AS SILK
LUBRICANTS

FOUR GRADES:
Light, Medium, Heavy and Ford Special.
The Heavy Grade is Specially for
Heavy Duty Trucks.

LOOK FOR THIS TRADE MARK
IT PROTECTS THE DEALER AND CONSUMER

SILCO

TRANSMISSION AND DIFFERENTIAL GREASE
STOPS THE LEAKS
FINDS THE SQUEAKS
INSURES CAR SERVICE

SILCO is the perfect lubricant for transmission and differential gears. It possesses far greater lubricating properties than ordinary greases. It forms a positive and lasting cushion between all points of contact, and quiets noisy gears. Silco does not leak or drip, and its efficiency is unaffected by heat or cold.

SILCO minimizes friction, and eliminates expansion from heat, thus preventing undue wear on gears and bearings. Cuts repair bills and is guaranteed to afford entire satisfaction.

Jobbers and Dealers: Our inducements are extremely liberal. Send for further lubricating facts and special trade discounts.

WRITE TODAY TO

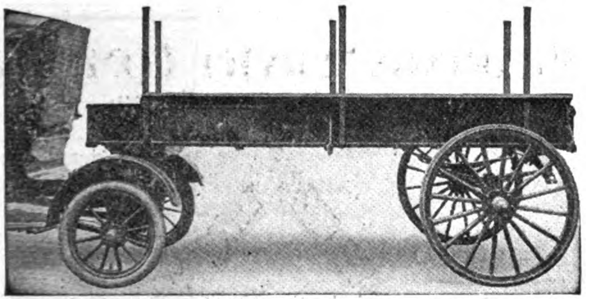
INTERNATIONAL LUBRICANTS COMPANY

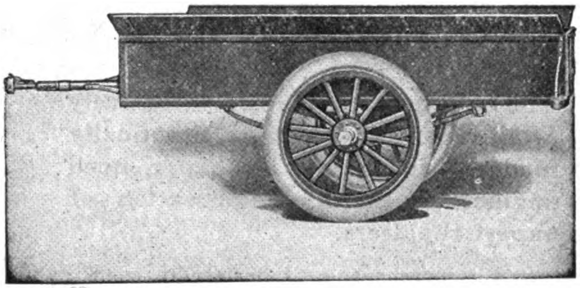
Manufacturers of SILCO Products

Home Office:
75 State Street, Boston. Mass.

New York Office:
51 East 42nd Street.

THE CONGDON & CARPENTER CO., Rhode Island Distributors, Providence, R. I.





Haul a 3000-lb. Load With Your Ford Car

A Ford runabout equipped with a Rocking Fifth Wheel, will have light truck capacity when used with **STOCKBRIDGE** 2000 or 3000 pound semi-trailers, and by uncoupling the body, which can be done in a very few minutes, the machine has all the utility of the pleasure car.

STOCKBRIDGE Semi-Trailers are the most practical equipment built. They are designed for truck service. They are operated with Ford economy. They can be coupled or uncoupled by any driver without help. The Rocking Fifth Wheel is easily removed. No time is lost. Simply remove six bolts. The owner has a car or a unit with truck capacity and makes no sacrifice of the qualities of either type of vehicle.

The car and semi-trailer can make 20 miles an hour on good roads and can climb any travelled grade.

STOCKBRIDGE Semi-Trailers are constructed for truck service. The bodies are express type, with flareboards or flareboards and stakes. The brief specifications are:

	2000 Pounds	**3000 Pounds**
AXLE	1 5-8 in. square, Timken roller bearings.	
SPRINGS	Platform type, 1 3-4 in. wide	Platform type, 2 in. wide
WHEELS	46 in. outside diameter, artillery type hubs, 1 5-8 in. spokes	
TIRES	Solid rubber, 1 3-4 in. flat top. side wire	2 in. flat top. side wire
EQUIPMENT	Complete Rocking Fifth Wheel ready for attaching	
PRICES	$195, f. o. b. Springfield, Mass.	$225 f. o. b. Springfield, Mass.

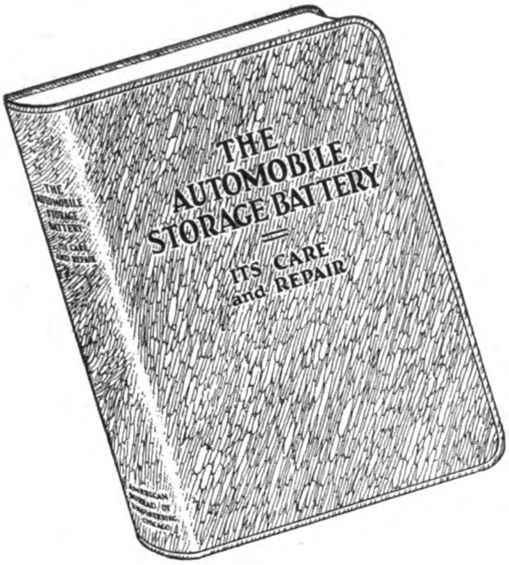
SPRINGFIELD TRAILER, 800 pounds capacity, express body, semi-elliptic springs, 1 1-4 in. axle, ball bearings, 12-spoke automobile wheels, 30x3 in. pneumatic tires, price **$105,** f. o. b. Springfield.

STOCKBRIDGE BODY COMPANY,

130-6 UNION STREET
SPRINGFIELD, MASSACHUSETTS

Battery Repairman's Encyclopedia

The AUTHORITY of Lead-Acid Batteries used for Automobile Ignition, Starting and Lighting, covering the theory of design and construction and the practise of restoration and reconstruction to obtain initial efficiency.



The only book that deals extensively of all repairs that can be practically made, written by an experienced engineer with the colaboration of expert repairers.

Extremely comprehensive, it deals with every subject fully and sequentially, affording information that will be invaluable in every battery or automobile service station.

Special instructions of types of batteries in general use.

The book contains 280 pages, with 186 illustrations, graphs and charts, the section devoted to restoration has 131 cuts, many from special photographs, detailing repair methods.

HANDSOMELY BOUND IN FLEXIBLE LEATHER COVER - - - **Price $5.00**

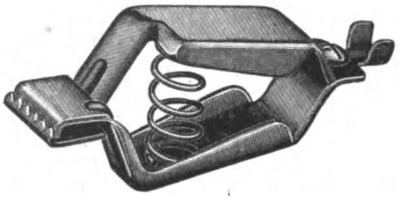
Sold with the privilege of five-day examination and of refund of purchase price if not satisfactory.

PUBLISHED BY

THE AMERICAN BUREAU OF ENGINEERING, Inc.

1018 Wabash Ave. Chicago, Ill.

UNIVERSAL BATTERY CLIPS



Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals. **No. 21-A—lead plated—1½" spread of jaws.**
Sample mailed postpaid for 15c in stamps.
Single Lots, Each 20c. Lots of 10, Each 15c.
Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.

WM.B.SCAIFE & SONS CO.
PITTSBURGH, PA.
BRAZED
AIR TANK

SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

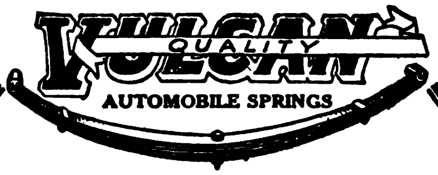
BEARINGS SERVICE COMPANY

Nation-wide Service on Bearings

New York
San Francisco
Chicago
Los Angeles
Detroit
Boston
Seattle
Atlanta
Portland, Ore.
Pittsburg
St. Louis

BEARINGS SERVICE COMPANY
General Offices
Detroit, Michigan

Minneapolis
Omaha
Dallas
Kansas City
Cleveland
Rochester
Philadelphia
Denver
New Orleans
Indianapolis
Toronto, Can.



Immediate shipment VULCAN seven leaf, heavy, oil tempered, fronts for the Ford. 588 other types, 90,000 springs in stock. Liberal discounts.

JENKINS VULCAN SPRING CO.

Factory and General Offices, Richmond, Indiana.

Branches with full stocks

St. Louis, Missouri - - 1402 Chestnut Street
Minneapolis, Minn. - - 1024 Hennepin Avenue
Dallas, Texas - - 209 South Houston Street
Reading, Pa. - - 538 Franklin Street
Sumter, S. C. - - 29 Caldwell Street

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.

The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.
Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

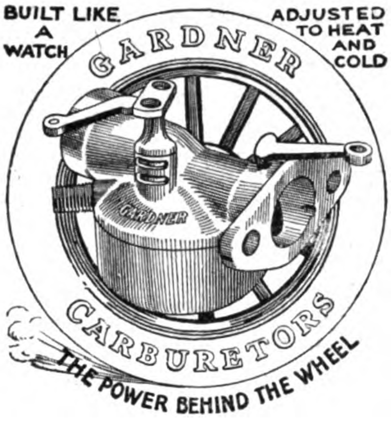
Jobbers and Dealers Write for Catalogues and Discounts.
The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

GARDNER CARBURETOR

FOR FORDS

More Mileage—More Power—More Speed


BUILT LIKE A WATCH
ADJUSTED TO HEAT AND COLD
GARDNER
GARDNER
CARBURETORS
THE POWER BEHIND THE WHEEL

RETAIL PRICE

$10.00

F. O. B. Factory

Will handle the present low grade fuel with an increase in power and 25% to 50% increase in mileage.

Money back in 30 days if you are not satisfied.

The GARDNER CARBURETOR is right. Let the oil companies pay for it. Hooverize on gasoline and help win the war.

DEALERS WRITE US FOR PRICES AND TERRITORY

Order Today. Do Not Delay. Write or Wire at Once.

Gardner Carburetor & Glass Works
201 Summit Ave., Detroit, U. S. A.

THE MOTOR TRUCK

Published Monthly The year $2; the copy 20c

A magazine for business men devoted to the promotion of highway haulage efficiency. It is the national authority of vehicular transportation. . . . .

AUTOMOBILE JOURNAL PUB. CO.
Times Building Pawtucket, R. I.

Real Harvey RACINE Service

Speed in delivery, quality in materials, dependability in performance, accuracy in fit—these are the things which will win for you the loyalty and friendship of your customers—these are the things which combine to make Harvey Service predominant in the motor trade.

There's A Harvey Jobber Near You

Drop us a card and we will send you his name and our Spring Book giving complete weights, styles, measurements and prices of over 900 different kinds of springs. Write today—you may need Harvey Help tomorrow.

Harvey Spring & Forging Co.
851 17th St., Racine, Wis.

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to owners of pleasure cars.

TRIPLEXD
TRIPLEXD
GASOLINE HOSE
PAT. APL'D FOR

METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUG. 24, 1912, OF

THE ACCESSORY AND GARAGE JOURNAL,
PUBLISHED MONTHLY AT PAWTUCKET, R. I.
For April 1, 1918.

State of Rhode Island, County of Providence.

Before me, a Notary Public, in and for the state and county aforesaid, personally appeared William H. Black, who, having been duly sworn according to law, deposes and says that he is one of the owners of the Accessory and Garage Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the act of Aug. 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are:

PUBLISHER, W. H. & D. O. Black, Jr....Pawtucket, R. I.
EDITOR, E. K. BROWN................Providence, R. I.
BUSINESS MANAGER, W. H. Black....Pawtucket, R. I.

2. That the owners are:

W. H. BLACK..........................Pawtucket, R. I.
D. O. BLACK, JR.......................Pawtucket, R. I.

3. That the known bondholders, mortgagees and other security holders owning or holding one per cent. or more of total amount of bonds, mortgages or other securities are:

M. J. BLACK, Mortgagee........... ....Pawtucket, R. I.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

(Signed) WILLIAM H. BLACK, Co-Partner.

Sworn to and subscribed before me this 4th day of April, 1918.

(Signed) THOMAS BESWICK, Notary Public.
[Seal] (My commission expires June 30, 1920.)

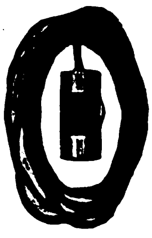
ELECTRIC GLUE POT

Mabey's Dry Heat Electric

Glue Pot

No flame; no soot or smoke. All danger of fire is eliminated

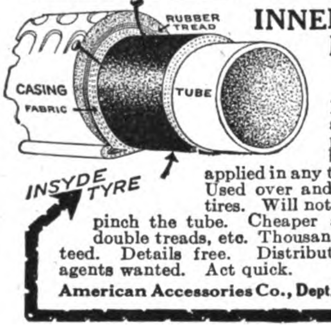
Capacity	Price without cover
1 qt.	$ 9.50
2 qts.	11.00
3 qts.	12.75
4 qts.	15.75


Century
Automobile Cigar Lighter, Complete $1.00 Each, F. O. B. Indianapolis.

DEALERS—Write For Prices.

MABEY'S ELECTRIC & MFG. CO.
968 Ft. Wayne Avenue INDIANAPOLIS, IND.

INSYDE TYRES



INNER ARMOR FOR AUTO TIRES

Double tire mileage, prevent punctures and blowouts. Easily applied in any tire without tools. Used over and over in several tires. Will not separate, heat or pinch the tube. Cheaper and better than double treads, etc. Thousands sold. Guaranteed. Details free. Distributors, dealers and agents wanted. Act quick.

American Accessories Co., Dept. AT, Cincinnati, O.

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

Strengthen Your Advertising Literature

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

Ross-Gould Mailing Lists St. Louis

Guaranteed Bearings

We Exchange Rebuilt Bearings for old or worn ones BILODEAU BALL BEARINGS WORKS

ECONOMY *Plus* EFFICIENCY

These words mean great strength toward winning the war. They form our policy—and by the standard of that policy we are continually schooling garage men and repair men to avail themselves of our exceptional service of **Rebuilding Worn Bearings.**

Bilodeau Rebuilds All Makes of Worn Bearings, to Run as True as When New.

Write at once for catalog, listing types, sizes and prices of standard bearings. Trade discounts confidential.

BILODEAU BALL BEARING WORKS
66 Stanhope Street, BOSTON, MASS.

Bunting Bearing Bronze IN Cored Bars

Bunting Bearing Metal is standard today with both Manufacturer and Repairman.

Is for sale by most any Jobber or can be purchased direct from us.

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approximate weight
A	1	½	12	2
B	1¼	½	12	3⅛
C	1½	⅝	12	5
D	1¾	¾	12	7
E	2	1	12	8⅛
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15⅞
K	3½	2½	12	17
L	4	3	12	21
M	4¾	3¼	12	20

The Bunting Brass & Bronze Co.
727 Spencer Street Toledo, Ohio

$2.00 THE YEAR

The Accessory and Garage Journal

The National Trade Authority

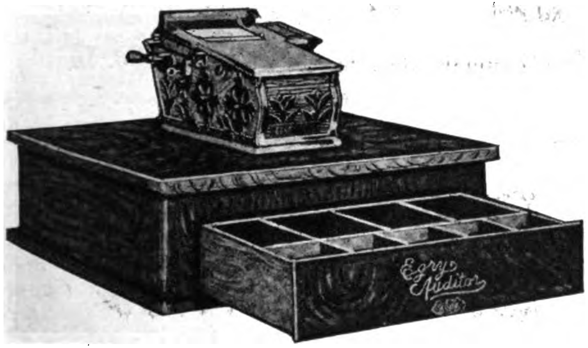
TIMES BUILDING, PAWTUCKET, R. I.

Make Your Business Safe For Success !

Just as modern, efficient and practical implements are necessary in the successful prosecution of the war, so in business are appliances that make for better business and the possibility of success actually needed

Your business is your concern—its success is your success; its profits are your profits, hence its *up to you* to make your business safe.

Egry Garage and Automobile Accessory System is worth your while to investigate. Its adoption will prove itself one of the most profitable investments you have ever made, because it protects *you* and *your business.*



Adopt the Egry System—gain the benefit of its advantages—it will do all this and more for you!

A complete record of each day's business; perfect control of all charges; safeguard your cash transactions; avoid unpleasant disputes; make your employees careful; increase trade confidence; cause the customer to automatically become a part of the system; aid in stock accounting; keep you posted on the details of your business by means of a secret record of each transaction; overcome the element of worry and waste; create efficiency.

Send today for detailed information—you incur no obligation to purchase. Our bulletin fully describing this worthy and meritorious System is yours for the asking. The cost of installation is trifling—the results in service and saving enormous.

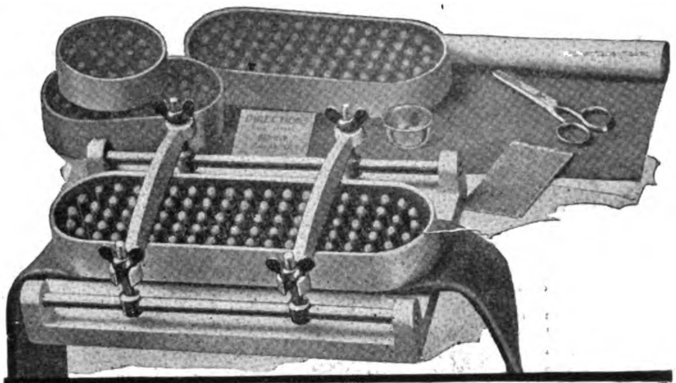
EGRY SYSTEMS REGISTER COMPANY

DO IT NOW—Send for bulletin!

The Egry Register Company

431 Monument Ave.
DAYTON, OHIO, U. S. A.

Let the name "EGRY" be associated with your every thought of "BETTER BUSINESS."



Do Tube Repairing

This Model S-2 Adamson is designed especially for repairing inner tubes, and will vulcanize a patch up to 12 inches in length. Uses common gasoline—no steam or electricity, no waiting—always ready for instant use.

It works automatically—needs no watching or personal attention. Any one can operate it in his odd moments, and make quick, sure and lasting repairs in a few minutes time—*at the lowest possible cost.*

Only $12.00 Complete

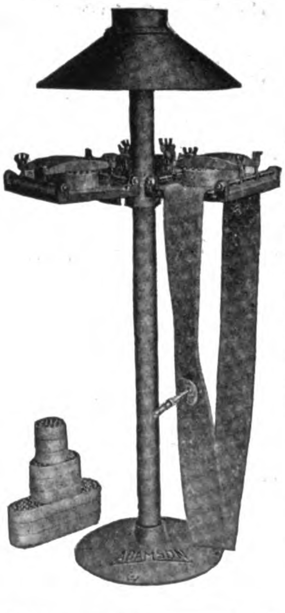
With Half-Pound of Repair Gum

Put one in your place of business. It takes up practically no room; requires no extra help; and will pay for itself many times over.

ADAMSON

MODEL S-2

VULCANIZER



OUR H-2 Outfit

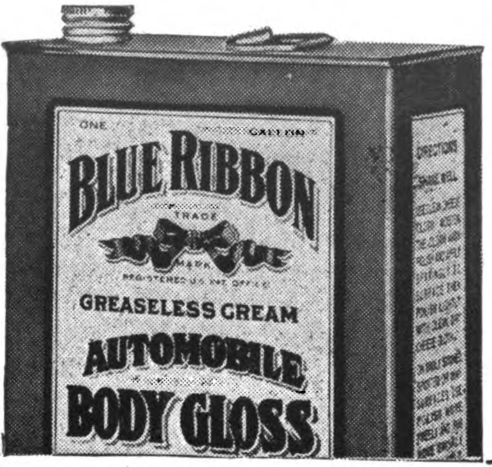
consists of three Model S-1 supported by floor stand and provided with hood for flue connection.

Price Complete $30.00

Start a Tube and Tire Repair Department With an "Adamson"

Immediate Shipments.
Order today.

Adamson Mfg. Co.
East Palestine, Ohio



KEEPS THE BODY OF YOUR CAR *Shining* LIKE A MIRROR

No Grease to Catch Dust
Does Not Coat the Finish
Best Furniture Polish Made
Use With Spray if Desired

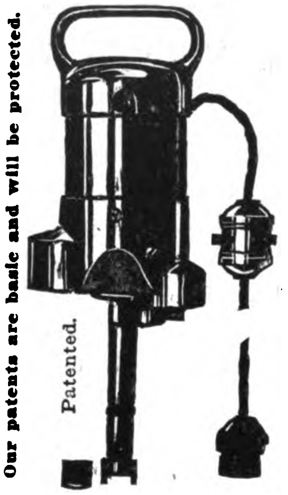
International Metal Polish Co.
INDIANAPOLIS, INDIANA

STENMAN VALVE ELECTRIC GRINDER

The STENMAN ELECTRIC VALVE GRINDER bears the same relation to hand valve grinding that the vacuum cleaner does to the old corn broom method of carpet cleaning. Ten days' usage and it has paid for itself.

REPAIR SHOP PROFITS ARE MADE ON LABOR

Your repair shop requires it. Efficiency calls for it
Your cash drawer demands it.



The STENMAN will grind a set of eight valves in 20 minutes. Whereas, it takes two hours or more to grind them by hand. And we guarantee the Stenman to do a better and more even job. Also—that a novice can operate it. Plugs in on any lamp socket —A or D current. Regular stock 110, 130 volts.* Made for higher voltage where required.

Used by the U. S. Army, Naval, Aviation and Postal Departments. Also, by the U. S. Steel Corp., Standard Oil, Gulf Refining, Western Electric and many up-to-date garages and shops on the EAST.

State voltage desired when ordering.

The Stenman Electric Valve Grinder Co. Inc.
Worcester, Mass.

DETROIT BATTERIES

For every make and model of motor car carrying an electric starting system. Replacements on cars no longer manufactured can be had promptly.

Detroit Battery Co.
Detroit, U. S. A.

CHASE *Leatherwove* "Is like the hide in most respects. In some respects its better"

CHASE MOHAIR VELVETS FOR UPHOLSTERY

CHASE DREDNAUT Motor Topping

CHASE PLUSH AND WOOL MOTOR ROBES

Familiarize yourself with Chase Products.

The choicest of upholstery fabrics for motor cars, Leatherwove or Mohair Velvets.

Wonderful robes for the Motorists.

L. C. CHASE CO.
BOSTON

New York San Francisco Detroit Chicago

Fawsco Fuses
FOR ALL AUTOMOBILES

J. H. Faw Inc.
MAIN OFFICE 37 WARREN ST.
NEW YORK, CITY.

WE MANUFACTURE AND DISTRIBUTE
13 STANDARD LINES

AUGLAIZE HOIST

LABOR SAVING

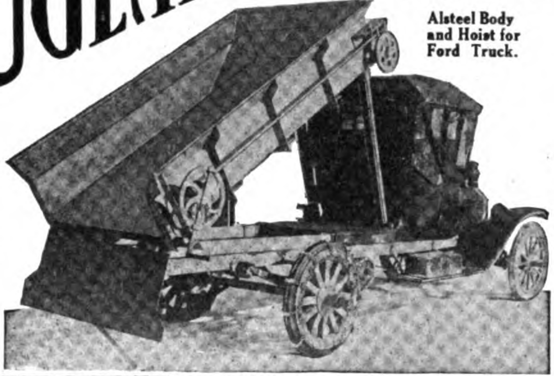
The Quadruple Worm Gear Easily Turns the Trick

A boy can raise 4 tons in three minutes with the Auglaize Hoist. Weighs less than any other and covered with a liberal guarantee. Built in sizes up to 5 tons. **Prices up to 1½ tons, $83.00; from 1½ to 5 tons, $109.00.**

AUGLAIZE ALSTEEL BODIES

Staunchly constructed of all steel and guaranteed against defective material and workmanship. Will carry 50% overload.

Prices range from $150.00 to $225.00, according to size.


Alsteel Body and Hoist for Ford Truck.

TIME SAVING

Auglaize Special Alsteel Body and Hoist for Ford Truck

Carrying capacity from 2700 to 3000 lbs. of gravel, sand, crushed stone or coal; approximate weight, 550 lbs.

Price, $187.50. Equipped with Auglaize Powerful, Speedy, Light-Weight Hoist.

Dealers allowed a liberal commission and given selling cooperation. Write at once for catalog and sales plans.

THE AUGLAIZE MOTOR CAR CO.
New Bremen - - - Ohio.

PERFECTION 5-IN-ONE VITALIZER

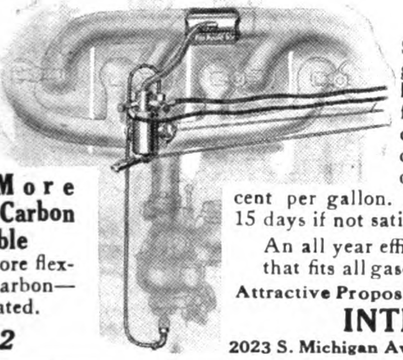
Instant Heating Unit That Eliminates Cold Weather Troubles.

A combination Heating Unit comprising Moistener, Electric Super-Heater Primer, Exhaust Super-Heater and Accelerator.

More Power — More Mileage — Less Carbon —Less Trouble

A smoother and more flexible engine with carbon—Practically Eliminated.

Price $12



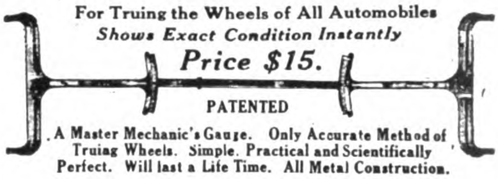
Starts a cold engine instantly. Increased satisfaction in the operation of your car with a saving of 25 to 60 per cent per gallon. Money back in 15 days if not satisfactory.

An all year efficiency device that fits all gasoline engines.

Attractive Proposition for Dealers.

Perfection Wheel Truing Gauge

For Truing the Wheels of All Automobiles
Shows Exact Condition Instantly


Price $15.
PATENTED

A Master Mechanic's Gauge. Only Accurate Method of Truing Wheels. Simple. Practical and Scientifically Perfect. Will last a Life Time. All Metal Construction.

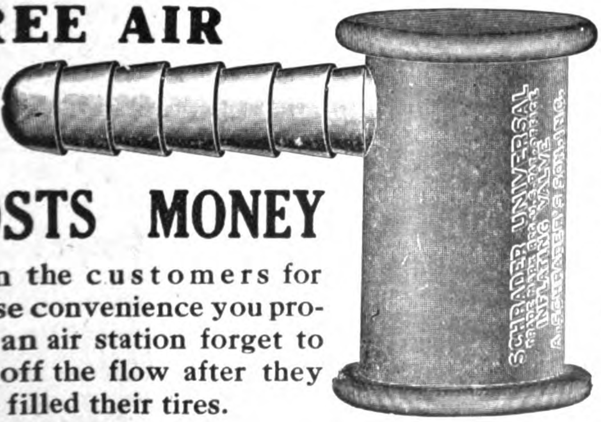
Save Your Tires

Keep Your Wheels in Alignment.

A Real Service for Car Owners, Fleet Owners, Repair Men, Garages, Tire Representatives and Dealers. Can be Used on Any Automobile—Anywhere.

INTERNATIONAL MOTOR PRODUCTS CO.
2023 S. Michigan Avenue Perfection Motor Products Chicago, Ill.. U. S. A.

FREE AIR



COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Automatic Inflating Valve

to your air hose.

Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve.

Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.25 in U. S. A.

W. S. S.

We Suggest Stamps
War Savings Stamps
Without Shells Soldiers
Would Soon Succumb
War Savings Stamps
Will Supply Soldiers
With Shells

Buy all you can and help to win the war.

Manufactured by A. SCHRADER'S SON, Inc.
800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

TRADE OUTLET

TIRES at Wholesale

3500 miles guaranteed. We have the cheapest, highest grade, LONGLIFE and RELIABLE tire in the world.

PRICE LIST.

Size	Plain	Non-Skid
30x3	$7.95	$8.75
30x3½......	10.30	11.50
32x3½......	12.05	14.00
33x4	16.85	19.00
34x4	17.25	19.75
35x4½......	24.25	27.00
37x5	28.00	35.00

All other sizes on request.
20% deposit required on C. O. D. orders.
Mail your order now and save 25% to 50% on your tire bills.

M. LIBEN & CO.

205j W. 48th Street
New York City

Auto Parts

SAVE AT LEAST 50%

We have in stock at all times parts for Stearns, Stevens-Duryeas, Flanders, Maxwells, E. M. F., Buicks, Mitchells, Speedwells, Herreshoffs, Hudsons, Elmores, Pope Hartfords and Franklin 6s. Write, Wire or Phone.

BOSTON AUTO PARTS CO.,
1240 Dorchester Avenue, Boston, Mass.

SCREW MACHINE PRODUCTS.
from ⅛" to 2½" diameter.
S. A. E. STANDARD CAP SCREWS AND PLAIN NUTS.
Reasonable Prices. Prompt Service.
THE NEW HAVEN SCREW CO.
191 Foster St., New Haven, Conn.

PEERLESS MOHAIR TOP DRESSING.

Waterproofs, dresses and dyes mohair, duck and canvas tops and curtains like new. Dries over night, leaving tops soft and pliable.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS LEATHER TOP DRESSING.

An oil dressing to renew the finish and keep rubber, leather and pantasote tops and curtains soft and pliable. Dries over night. Not for seats or cushions.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS FORD TOP DRESSING.

A dressing made for Ford top material, making a rich, black gloss, adding life and color to old tops. Dries over night, wears indefinitely.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS CUSHION DRESSING.

Without danger of washing or rubbing off, it brightens and renews the finish of leather seats and cushions. Dries in twenty minutes.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS LAMP ENAMEL.

A fine enamel, either gloss or dull finish for lamps and similar parts. One coat covers solid over the metal or old enamel. Air drying over night.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS CYLINDER ENAMEL.
Black and Gray.

A fine enamel that resists heat, grease and gasoline and protects all metal parts from rust and wear. Air dries over night.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

Auto Manufacturers Attention !

Are you looking for a Truck to manufacture?

I Have It.

Complete patents, plans and blueprints for

FOUR WHEEL DRIVE.

Simple, Economical, Efficient.

Write at once.

W. FRICK, 931 Walnut St., Racine, Wis.

FOR SALE—Hayward Vulcanizer Steam Plant, Model M 4; guaranteed good as new; cost, $300; selling price, $78. Draper's Supply Store, North Attleboro, Mass.

U
US
USED
TIRES

Our references should command your attention. Any Boston tire agency, Dunn's and Exchange Trust Co. Mgrs. K. S. Brayton, George Vallely.

30x3	...$3.30	34x4	... $8.00
30x3½	...$4.50	34x4½	... $9.00
32x3½	...$4.85	35x4½	... $9.00
31x4	...$6.00	36x4½	... $9.00
32x4	...$6.00	35x5	...$12.00
33x4	...$7.00	37x5	...$10.00

NON-SKIDS 10% HIGHER.

USED TIRE OUTLET CO.
191 Cambria St., Boston, Mass.

AUTO PARTS

Why pay full price when we can save you, on slightly used parts, **50 to 75%?** **Magnetos**—Bosch DU 4 set spark, **$20;** Bosch DU 4 variable, **$25;** Bosch 6 cyl., **$20.**
Motors—$40 to $100.

Write for specifications.

PRISCOL AUTO PARTS CO.
266 Grand River Ave. Detroit, Mich.

UNI—V—SAL Valve Grinding Tool

Adjustable. Will fit the valve of any automobile engine. Used with ordinary bit-brace. No repair shop can afford to be without it. **Price, 50 cents.**

L. J. KAISER.
146 Park Blvd. Detroit, Mich.

GREAT SLAUGHTER on Second Hand Auto and Truck Parts of all descriptions, including Magnetos, Carburetors, Starters, Head Lights, Radiators and everything pertaining to the automobile. Consult us first and save yourself time and trouble.

BOULEVARD MOTOR CO.,
276 River St., Cambridge, Mass.
Phone Cambridge, 1621.

TRUCK CHAINS AND SPROCKETS

We carry the largest and most complete stock in New England.

WALTER H. WILLIAMS, Agent.
175 Mass. Ave., Boston, Mass.

Rebuilt Magnetos

High Tension Bosch, $12.50 Up.

Warranted to give perfect satisfaction or money refunded.

SPECIALTY MANUFACTURING CO.
637 Mass. Ave., Arlington, Mass.

TRADE OUTLET

WE HAVE THAT PART FOR YOUR CAR AT A VERY LOW PRICE.

NEW PARTS FOR ALL CARS.

Gears—Axle Shafts—Bearings—Motor—Transmission—Axles and Clutch Parts — Springs — Fenders—Universal Joints — Radiators — Bodies — Tops—Curtains—Windshields—Wheels—Rims, Etc., Etc.

HOUCK WIRE WHEELS.

34 and 36x4½ Packard type—per set of five	$75.00
Windshields for all cars	8.00 up
Wood wheels for all cars	3.00 up
Demountable rims and rim parts for all cars	3.00 up
33x4 Goodyear and U. S. Casings complete with inner tubes—Brand new FIRSTS not Seconds—Both for	24.50

MAXWELL BODIES.

"Install one on your Ford."

Beautiful streamline Maxwell bodies, completely upholstered and painted a rich blue black—will fit Fords and other light cars.

Touring type	$35.00
Roadster type	30.00

$5.00 extra for crating.

PURITAN SPECIALS.

Late model Packard body—complete with top and windshield	$300.00
Hartford shock absorbers complete with fittings	25.00
Bosch D. U. 4 Magnetos—variable spark	30.00
Splitfire TFS coils	8.00
6 volt autolite generators	12.50
6 volt 80 hour starting and lighting batteries	18.50

Write for a copy of our bargain bulletin.

PURITAN MACHINE COMPANY.
All parts for all cars.
51 Lafayette Blvd. Detroit, Mich.

SPECIAL VALUES

MAGNETOS.

Bosch DU-4 Variable spark	$30.00
Bosch Du-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cly. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	12.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

PREST-O-LITE TANKS.

Model B., fully charged	$8.00
Model E., fully charged	7.00

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hour service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange
192 Grand River Ave, Detroit, Mich.

WAR SAVINGS STAMPS DELIVERED TO YOUR HOME

Tear Out—Fill In—Hand Letter-Carrier—or Mail to Post Office

TO THE LOCAL POSTMASTER:—Kindly have letter-carrier deliver to me on ______________ (Date) for which I will pay on delivery:

______ (State number wanted) $5. U. S. WAR-SAVINGS STAMPS at $______ (See prices below) each

______ (State number wanted) 25c. U. S. THRIFT STAMPS at 25c. each.

Name ______________________

Address ______________________

W.S.S.
WAR SAVINGS STAMPS
ISSUED BY THE
UNITED STATES
GOVERNMENT

W. S. S. COST DURING 1918

April	$4.15	July	$4.18	Oct.	$4.21
May	4.16	Aug.	4.19	Nov.	4.22
June	4.17	Sept.	4.20	Dec.	4.23

W. S. S. WORTH $5.00 JANUARY 1, 1923

AUTO SALVAGE CO., INC.

The World's Largest New and Used Parts House. St. Louis, 2823-25 Locust St.; Kansas City, 1701 Main St.; Cincinnati, 214 E. Third St. Write to nearest office.

Parts for any Automobile at a saving of 50% to 80%. Our three great plants cover every state in the Union, and we are therefore in better position to fill your orders.

Engines—40 to 50 of them on the floor now and we will make prices on them that will move them. Several unit power plants.

Transmissions—Planetary, two-speed, three-speed, four-speed, centre control, with and without multiple disc clutch; all at surprisingly low prices.

Rear Axles—From the Timken to the Ford, many with transmission on them, at prices from $10 to $75.

Our Guarantee: You Must Be Satisfied. Any article purchased from us which does not in your opinion, give satisfaction or fit, can be returned to us at our expense and your money will be cheerfully refunded.

VACUUM MOBILOIL ON THE WAY

A carload of Vacuum Mobiloil is expected at any time.

DEALERS AND TRUCK USERS

Get My Price Before Buying—It Is Right. Write Today.

NATHAN E. PACKARD
221 Warren Ave., Brockton, Mass.

BOSCH MAGNETOS; all models; Eisemann, Splitdorf and Remy Magnetos always on hand. Price list sent. D. Lenthe, Ordway Bldg., Newark, N. J.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. 40 Mathewson St. Providence, R. I.
Phone Union 4179-R.

IF IT'S Used Auto Parts

WRITE US.

Gears, Rear and Front Ends and Used Accessories for nearly all makes. Just Try Us. All Mail Orders Filled.

Write or Phone.

N. HURWITZ & SON.
106 W. Cedar St., Boston, Mass.

CYLINDERS RE-BORED

All sizes. Oversize Pistons, Rings, Etc.

Fords	$15.00

Croft Electric Lighting Outfits for Ford Cars. Agents Wanted.

THE AUTO EXCHANGE,
7 Reservoir Ave., Providence, R. I.

8033[illegible]4

"NORMA"
PRECISION
BALL BEARINGS
(PATENTED)

Unless your factor of safety is amply large throughout your machine—even in the so-called minor parts—your whole construction is weakened. Your ability to meet overload and emergency strains is limited by the resistance of the weakest part. The reserve strength of a car or truck is only that of its weakest part or accessory.

The proved service capacity of "NORMA" Speed Bearings—the high factor of bearing safety which they impart to an accessory in which they are used—explains why the makers of magnetos and lighting generators of proved dependability have standardized their product on "NORMA" Bearings.

Be *Sure*—See That Your Electrical Accessories Are "NORMA" Equipped.

THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK
Ball, Roller, Thrust, Combination Bearings

THE ACCESSORY AND GARAGE JOURNAL
INDEX TO ADVERTISERS

Page
Adamson Mfg. Co. 55-4
Advance Auto Accessories Corp 15
American Accessories Co 54
American Bureau of Engineering, Inc 52
Auglaize Motor Car Co 57
Auto Exchange 59
Auto Salvage Co., Inc 59

Bacon Service 62
Ballman-Whitten Mfg. Co 62
Bearings Service Co 52
Bilodeau Ball Bearings Works 54
Boston Auto Parts Co 58
Bowser & Co., Inc., S. F 63
Brunner Mfg. Co 9
Budrick Rubber Co 61
Bunting Brass & Bronze Co 54

Carborundum Co 8
Champion Ignition Co 61
Chase Co., L. C 56
Colorado Tire and Leather Co 3
Columbus Varnish Co 58
Continental Auto Parts Co 62
Corp Brothers 59
Curtis Pneumatic Machinery Co 2

Detroit Battery Co 56
Detroit Magneto Exchange 59
Dixon Crucible Co., Jos 63
Draper's Supply Store 58
Dyer Co., G. H 1

Egry Register Co 55

Faw, Inc., J. H 57
Fitzgerald Mfg. Co 47
Frick, W 58

Gardner Carburetor and Glass Works 53
Greenfield Tap and Die Corp 12

Harvey Spring and Forging Co 53
Higgins Spring and Axle Co 5

Imperial Oil Co 62
International Lubricants Co 51
International Metal Polish Co 56
International Motor Products Co 57

INDEX TO ADVERTISERS

(Continued)

Page

Jenkins Vulcan Spring Co..........52

Kaiser, L. J..........58

Lawson, F. H., Co..........64
Lenthe, D..........59

Mabey's Electric and Mfg. Co..........54
Martin Mfg. Co..........53
Metal Hose and Tubing Co..........53
Mossberg Co., Frank..........Cover
Motor Specialties Co..........64
Mueller & Co., R. S..........52

National Cash Register Co..........45
New Departure Mfg. Co..........62
New Era Spring and Specialty Co..........63
Norma Co. of America..........60

Packard, Nathan E..........59
Piston Ring Co..........64
Priscol Auto Parts Co..........58
Puritan Machine Co..........59

Ross-Gould List and Letter Co..........54

Scaife, Wm. B. & Sons Co..........52
Schrader's Son, Inc., A..........57
Shaler Co., C. A..........11
Shurnuff Mfg. Co..........16
Stenman Electric Valve Grinder Co., Inc..........56
Stockbridge Body Co..........51
Superior Tire and Rubber Co.......... 6

United States Air Compressor Co..........12

Vanderpool Co..........62
Vaporator Mfg. Co..........13

Walden-Worcester, Inc..........Cover
Webber Mfg. Co..........62
Westfield Chemical Co..........14
Weston Electrical Instrument Co.......... 7
Williams Foundry and Machine Co..........10
Wisconsin Auto Top Co..........Cover

The
AUTOMOBILE
JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to the owners of passenger cars.

A quality magazine with prestige and circulation that brings results to advertisers.

TIMES BUILDING
PAWTUCKET, R. I.

Reg. ⅞-inch
Titan

Albert Champion Means
AC Spark Plugs
The Standard Spark Plug of America

LOOK FOR AC ON THE PORCELAIN

PERFORMANCES, not claims, are what count. AC is exclusive equipment on NINETY makes. There is an AC for every type of motor.

SOLE MANUFACTURERS
Champion Ignition Co., FLINT, MICHIGAN

GOOD TIRES
AT CUT RATE PRICES

High grade firsts—not seconds, not blemished or rejected tires, but good tires; tires that will bring every user back for more. Sold without guarantee.

RIBBED TIRES

At these prices are the biggest bargains you ever purchased in your life—Think of it!

PRICES TO DEALERS:

	Non-Skid	Tubes		Non-Skid	Tubes
30x3....	$8.00	$1.90	32x4..	$16.10	$3.05
30x3½..	10.25	2.15	33x4..	16.80	3.10
32x3½.	12.00	2.25	34x4..	17.25	3.20

Write now for dealers' proposition, or better yet, rush in a trial order with Chicago or New York draft, express or P. O. money order. If you prefer, send 20 per cent. of amount with your order and we'll ship goods C. O. D., subject to examination. Investigate this now. Let us tell you how we can do it.

BUDRICK RUBBER CO.
Dept. C, 36 S. State St., Chicago.

THE PERFECT GEAR

LUBRICANT

Evr-Lastin
GEAR COMPOUND
IMPERIAL OIL CO
ST LOUIS

For Transmissions And Differentials

Evr-Lastin will not run in hottest weather—will not freeze in coldest weather—sticks to metal under the worst strains and pressure—preventing wear and assuring perfect lubrication.

Evr-Lastin TRADE MARK

GEAR COMPOUND

Less Required—Lasts Longer

It is only necessary to use one third the quantity of *Evr-Lastin* that you would oil or grease—and will last three or four times as long. Comes in 5, 10, 25 and 50-lb. tins—also in 225 and 400-lb. barrels.

FREE TO DEALERS With first order for half or full barrel of *Evr-Lastin*, we will send a self measuring 20-lb. grease cabinet free—pumps ¼-lb. to the stroke.

You will find *Evr-Lastin* a big money maker—write us today for prices and full particulars.

IMPERIAL OIL CO.
3142 Locust St. St. Louis, Mo.

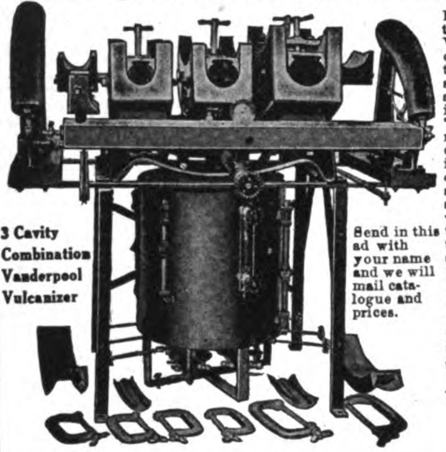
Push Your Business —

I'll Show You How to Increase Your Winter Trade.

THERE is business all around you. Good, profitable business that will bring in many an extra dollar. Don't wait for spring. Do business all winter. I'm helping garage men and supply dealers to do more business. I'll help you. Write on your business paper that you're ready for more business. I have nothing to sell but service backed by nine years' experience in promoting sales successfully.

Write
Edward W. Bacon
BACON SERVICE
151 Grand St., New York

Vulcanizing With a Vanderpool Vulcanizer Brings Big Profits



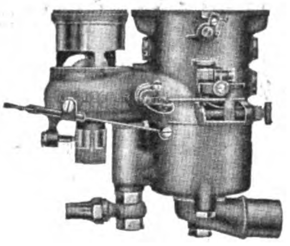
3 Cavity Combination Vanderpool Vulcanizer

Send in this ad with your name and we will mail catalogue and prices.

Here is an exceptional opportunity for Garages as well as Vulcanizing Companies to secure a vulcanizer that will turn out high-grade work at a small cost. The fuel saved alone will pay for the machine in a short time—then you will "cash in" on your investment. This plant, the Vanderpool Vulcanizer, is meeting with enthusiastic approval of hundreds of satisfied users all over the country. Unsolicited testimonials from the various companies now using the "Vanderpool" testify to the dependability, efficiency and economy of this "Vulcanizing Wonder." One man writes that the first month's profits paid for the plant. No experience needed—we teach you how. It occupies very little floor space, and "once bought, you will never have to buy again."

VANDERPOOL CO.
Springfield, Ohio

WEBBER CARBURETOR AUTOMATICALLY BETTER



Delivers correct mixture at all engine speeds.

Method of breaking up fuel insures maximum results.

DEALERS: A good line to handle.

WEBBER MANUFACTURING COMPANY
Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway

B-W DIRECT CURRENT

20
10
0
10
20
DISCHARGE
CHARGE
AMPERES
B-W MFG. CO.
ST LOUIS, MO.

STURDILY CONSTRUCTED to retain accuracy under the most severe conditions. Handsome in appearance. Made in both flush and surface types. Finished in bright nickel or black rubberoid as desired.

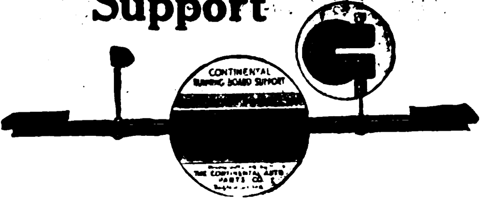
Better Ammeters Cannot Be Purchased, PRICE.......$1.90

Send For Literature

Ballman-Whitten Mfg. Co.,
4440 Olive St. St. Louis, Mo

AMMETERS

Continental Running Board Support


CONTINENTAL RUNNING BOARD SUPPORT
THE CONTINENTAL AUTO PARTS CO.

Reinforces and strengthens the running board on light-weight cars. It is a necessity to Ford cars; can also be used on weakly supported running boards on any car or truck. Gives firm support to running board for carrying batteries, tool boxes, luggage, etc. Can be attached in a few minutes without drilling holes.

List Price $2.75. DEALERS—Write at once for descriptive folder, prices and discounts

CONTINENTAL AUTO PARTS CO., Knightstown Indiana

NEW DEPARTURE BALL BEARINGS

Strength
Stamina
Service

The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

DIXON'S GRAPHITE GREASE
ORDINARY LUBRICANTS

Your Customers' Confidence

in you will be measured by their confidence in the lubricants that give 100% service.

DIXON'S GRAPHITE Automobile LUBRICANTS

will give your customers 100% service and increase their confidence in you.

Write to us for Dixon's Dealer's Deal No. 49-G

Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

Established 1827

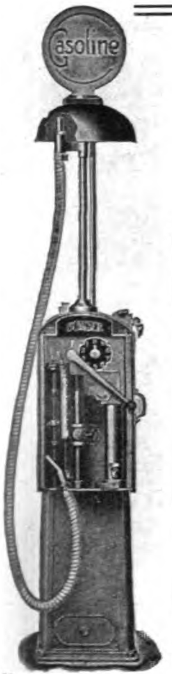


Figure 241—a one gallon measuring pump for curb use.

BOWSER
ESTABLISHED 1885

OIL and GASOLINE STORAGE SYSTEMS

ALWAYS on the job; safe; rapid and efficient in operation; clean and attractive; time and labor savers; business producers.

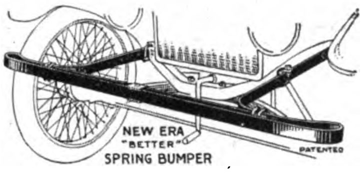
The pump with business qualifications.

Write for Booklet 4.

S. F. Bowser & Co., Inc.
Ft. Wayne, Indiana, U. S. A.

NEW ERA *"BETTER"* MOTOR REQUISITES

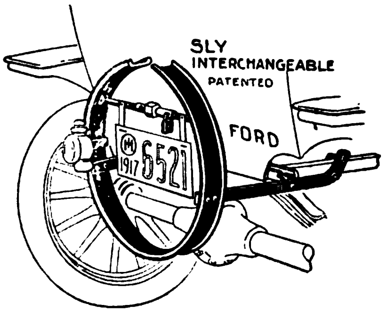
Interchangeable "Better" Spring Bumper


NEW ERA "BETTER" SPRING BUMPER
PATENTED

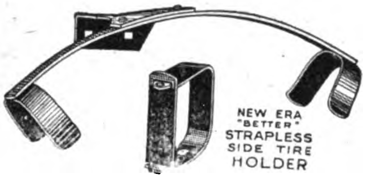
Stocking troubles eliminated. 93% of cars will take either Ratchet or Hook-On attaching arms. Permanent Guarantee. All Black, $10.00, or Black with Nickel bar, $11.50.

"Sly Perfect" Interchangeable Rear Tire Carrier

Outsold all others during 1917 and improved for 1918. For all Ford bodies and Chevrolet No. 490. Takes casing alone or on demountable rim. Keeping moisture out of casing. Holds by expansion grip on inside of rim. Single, $5.00; Double, $6.50.


SLY INTERCHANGEABLE
PATENTED
FORD
M 1917 6521

New Era "Better" Strapless Side Tire Holder


NEW ERA "BETTER" STRAPLESS SIDE TIRE HOLDER

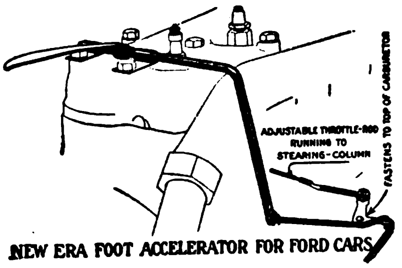
All steel — No Straps. Locking Device part of holder. Easy to slip tire in place—done in less time than to fasten straps.

Single, $2.00; Double, $3.00;
Extra Carrying Rim, if not demountable, $1.50.

New Era Ford Foot Accelerator

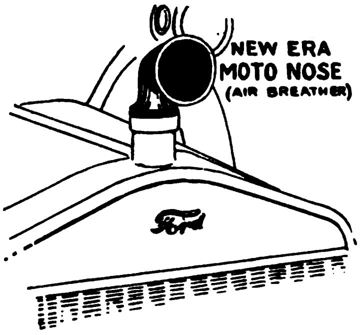
Makes the Ford "Pick Up" like other cars. No holes to drill, or machine work. No pulley, chain, belt or wire.

Complete, $1.25.


ADJUSTABLE THROTTLE-ROD RUNNING TO STEARING-COLUMN
FASTENS TO TOP OF CARBURETOR
NEW ERA FOOT ACCELERATOR FOR FORD CARS

New Era "Moto Nose" (Air Breather)

for Ford Cars.


NEW ERA MOTO NOSE (AIR BREATHER)
Ford

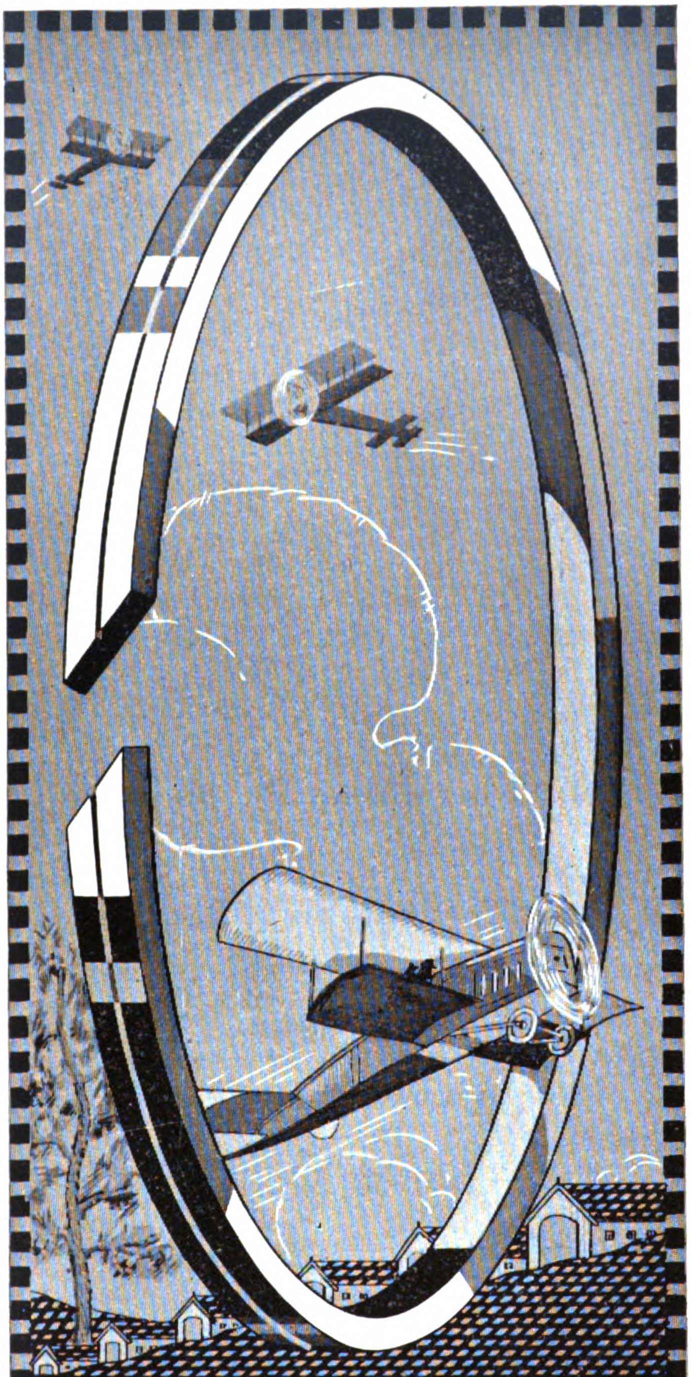
Keeps water in radiator from getting too hot by taking cold air into radiator over surface of water. Just remove radiator cap and screw on "Moto Nose."

Black, $1.00.
Nickel, $1.50.

Write for Complete Catalogue

NEW ERA SPRING & SPECIALTY CO.

1177 Hamilton Ave., Grand Rapids, Mich., U. S. A. 53



ONE OF 500,000 PISTON RINGS for the Liberty Air-craft Motor

NOW BEING PRODUCED BY

THE Piston RING COMPANY

SPECIALISTS IN PISTON RINGS

MUSKEGON, MICHIGAN

MOSCO

Timer For Ford Car

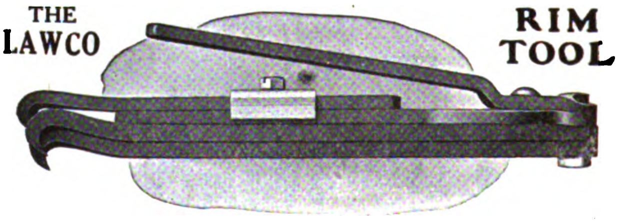
Extra heavy pressed steel shell, aluminum finish. Insulating ring of gray bone fibre.

Terminals insulated all the way through. One-hand, self-closing oiler. Pressed steel arm and compression spring on brush assembly. Brush assembly sold separately. Interesting prices. Immediate delivery.

MOTOR SPECIALTIES CO.
MANUFACTURERS
WALTHAM MASS.

FITS 50 RIMS

THE LAWCO RIM TOOL



Fifteen Seconds By Your Watch!

Any capable garage man can remove a tire from any demountable transversely split rim in 15 seconds, with the LAWCO Rim Tool. And from ***almost any rim,*** for the LAWCO fits more than fifty.

Three movements—breaking, contracting and latching, cover all necessary operations. The LAWCO'S claws hook over rim and ***contract*** it while tire is removed and replaced. The lever locks tool automatically and ***holds*** the contraction.

Tool also fits inside rim and permits latching by a reverse movement of the lever which expands tool and rim as much as is necessary. Breaks open, or latches, any sort of latch. Will not injure rim, tire or valve stem.

Made of forged steel, practically indestructible. Weighs 5½ pounds, but action is ***quicker*** and as sure as tools costing $50 and weighing 300 pounds. Closes like knife. Goes in tool box.

In a busy garage The LAWCO will save its cost ($3.50) in one day. Send a card now for free photographic demonstration of how LAWCO works, and full details.

THE F. H. LAWSON COMPANY

Dept. G. CINCINNATI, OHIO

IS YOUR JOBBER'S NAME HERE ?

This list includes the names of many of the largest and most progressive accessory and hardware jobbers in the United States and Canada.

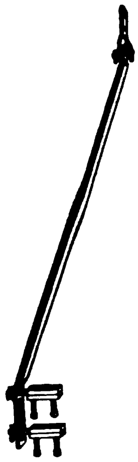
YOU NEED DYER PRODUCTS—THEY HANDLE THEM!

American Motor Equipment Co.,
Boston, Mass.
Auto Supply Co.,
Scranton, Pa.
Automobile Supply Co.,
Chicago, Ill.
Alexander-Sewald Co.,
Atlanta, Ga.
Albany Hardware Co.,
Albany, N. Y.
D. W. Alderman,
Florence, S. C.
James Bailey Co.,
Portland, Me.

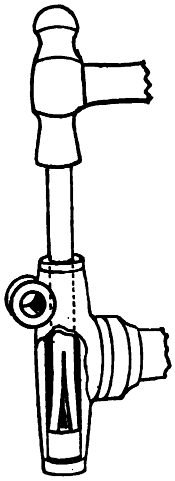
Butts & Ordway Co.,
Boston, Mass.
J. J. Bantlin Co.,
Cincinnati, O.
Bertram Motor Supply Co.,
Boise, Idaho.
Beck & Corbett Iron Co.,
St. Louis, Mo.
N. H. Bragg & Son,
Bangor, Me.
J. B. Burwell Supply Co.,
Oklahoma City.
Chicago Automobile Supply House,
Chicago, Ill.

Bowman Bros., Ltd.,
Saskatoon, Canada.
C. A. Cody Co.,
Providence, R. I.
Congdon & Carpenter,
Providence, R. I.
Carolina Automobile Supply House,
Charlotte, S. C.
Canadian-Fairbanks-Morse Co.,
All Branches, Canada.
Commings Bros.,
Flint, Mich.
W. F. Dulaney & Sons,
Paris, Texas.

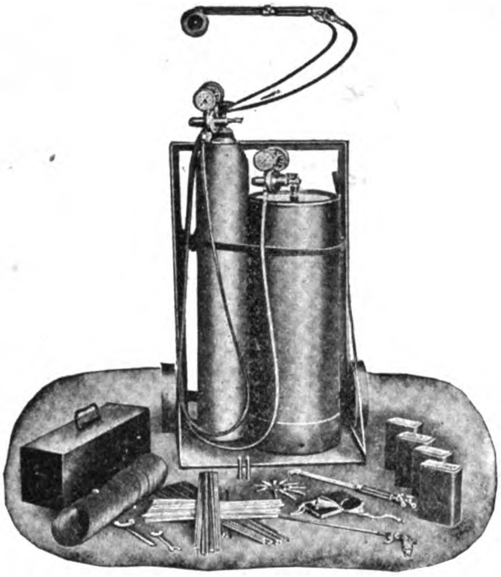
SEVEN POPULAR DYER PRODUCTS



Towford enables one man in a Ford to safely tow and accurately steer one or two other Fords.

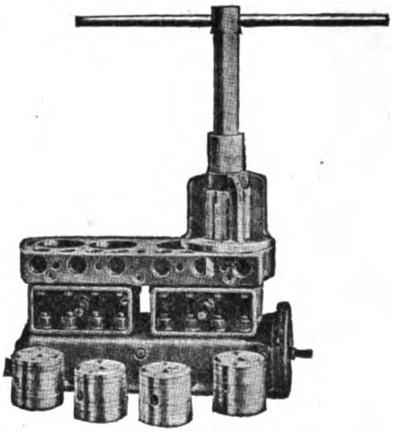


List 75c.
Jiffy Bushing Extractor Quickly and easily removes Ford Spindle. Spring and Knuckle Bushings.

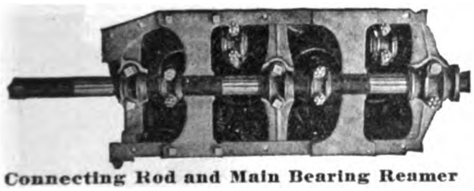


Style B Oxy-Acetylene Welding and Cutting Outfit.

High efficiency, long service, attractive price.

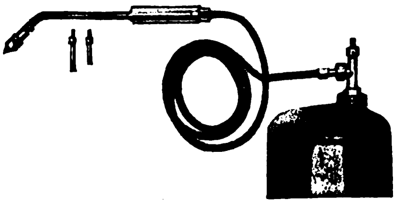


Reamer for enlarging 3¾ inch cylinders, as Ford or Buick, 1/32 inch. Easy to operate. Gives quick. accurate job. We manufacture large quantities of high grade pistons, any oversize.



Connecting Rod and Main Bearing Reamer

A reamer which will accurately line and size Ford connecting rod and main bearings.



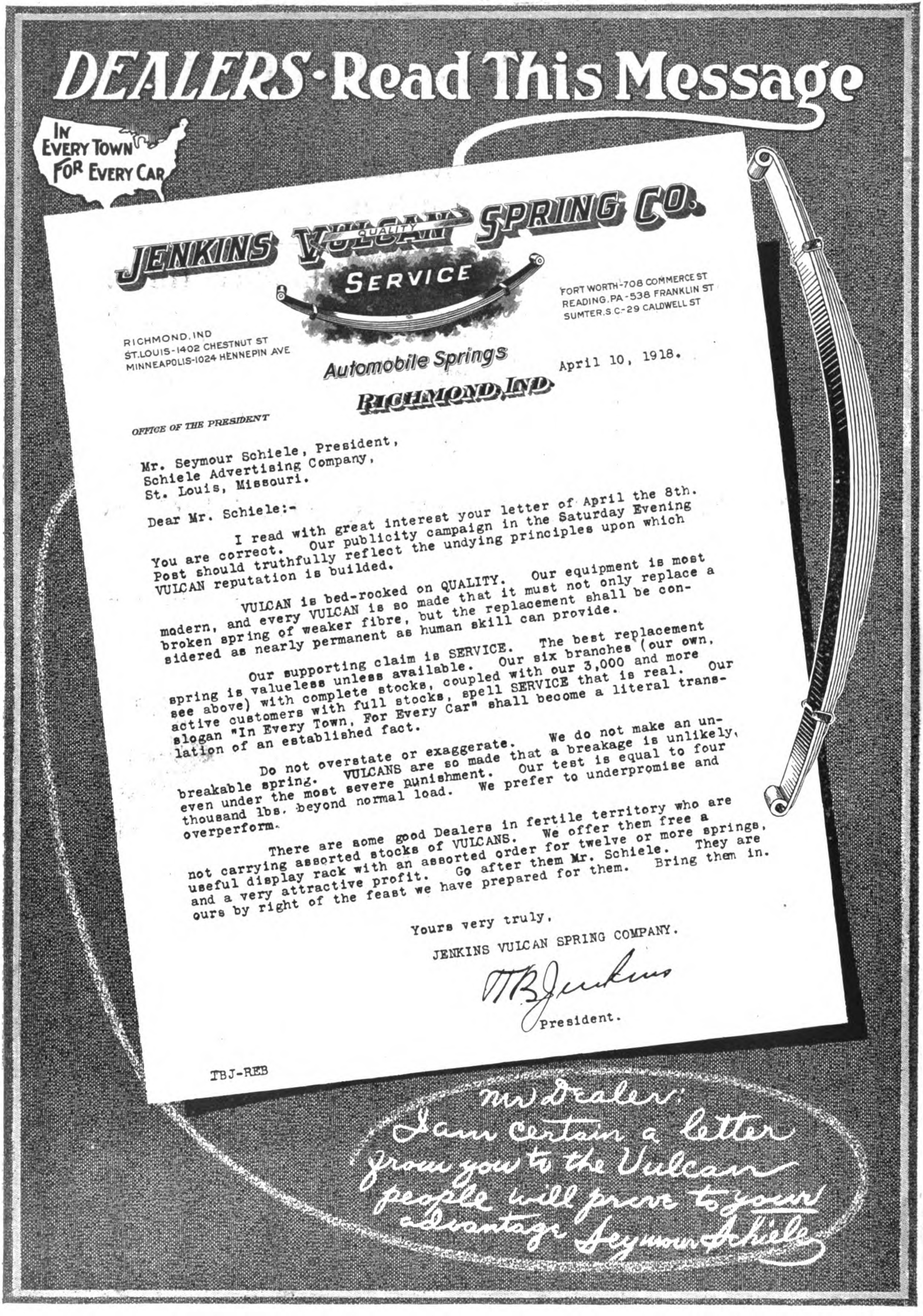
Style A Soldering and Brazing Outfit for doing quick work in repair or manufacture.

Rebabbiting Jig

Rebabbitt Ford Connecting Rod Bearings, easily, quickly and at small cost.

NOTICE! We shall publish the names of all jobbers handling our products in this space in future numbers. If your jobber does not handle DYER PRODUCTS, *write us.*

THE G. H. DYER Co., - - Cambridge, Mass.


In Every Town For Every Car

DEALERS·Read This Message

JENKINS ~~VULCAN~~ QUALITY SPRING CO.
SERVICE
Automobile Springs
RICHMOND, IND.

RICHMOND, IND
ST. LOUIS-1402 CHESTNUT ST
MINNEAPOLIS-1024 HENNEPIN AVE

FORT WORTH-708 COMMERCE ST
READING, PA-538 FRANKLIN ST
SUMTER, S.C-29 CALDWELL ST

OFFICE OF THE PRESIDENT

April 10, 1918.

Mr. Seymour Schiele, President,
Schiele Advertising Company,
St. Louis, Missouri.

Dear Mr. Schiele:-

I read with great interest your letter of April the 8th. You are correct. Our publicity campaign in the Saturday Evening Post should truthfully reflect the undying principles upon which VULCAN reputation is builded.

VULCAN is bed-rocked on QUALITY. Our equipment is most modern, and every VULCAN is so made that it must not only replace a broken spring of weaker fibre, but the replacement shall be considered as nearly permanent as human skill can provide.

Our supporting claim is SERVICE. The best replacement spring is valueless unless available. Our six branches (our own, see above) with complete stocks, coupled with our 3,000 and more active customers with full stocks, spell SERVICE that is real. Our slogan "In Every Town, For Every Car" shall become a literal translation of an established fact.

Do not overstate or exaggerate. We do not make an unbreakable spring. VULCANS are so made that a breakage is unlikely, even under the most severe punishment. Our test is equal to four thousand lbs. beyond normal load. We prefer to underpromise and overperform.

There are some good Dealers in fertile territory who are not carrying assorted stocks of VULCANS. We offer them free a useful display rack with an assorted order for twelve or more springs, and a very attractive profit. Go after them Mr. Schiele. They are ours by right of the feast we have prepared for them. Bring them in.

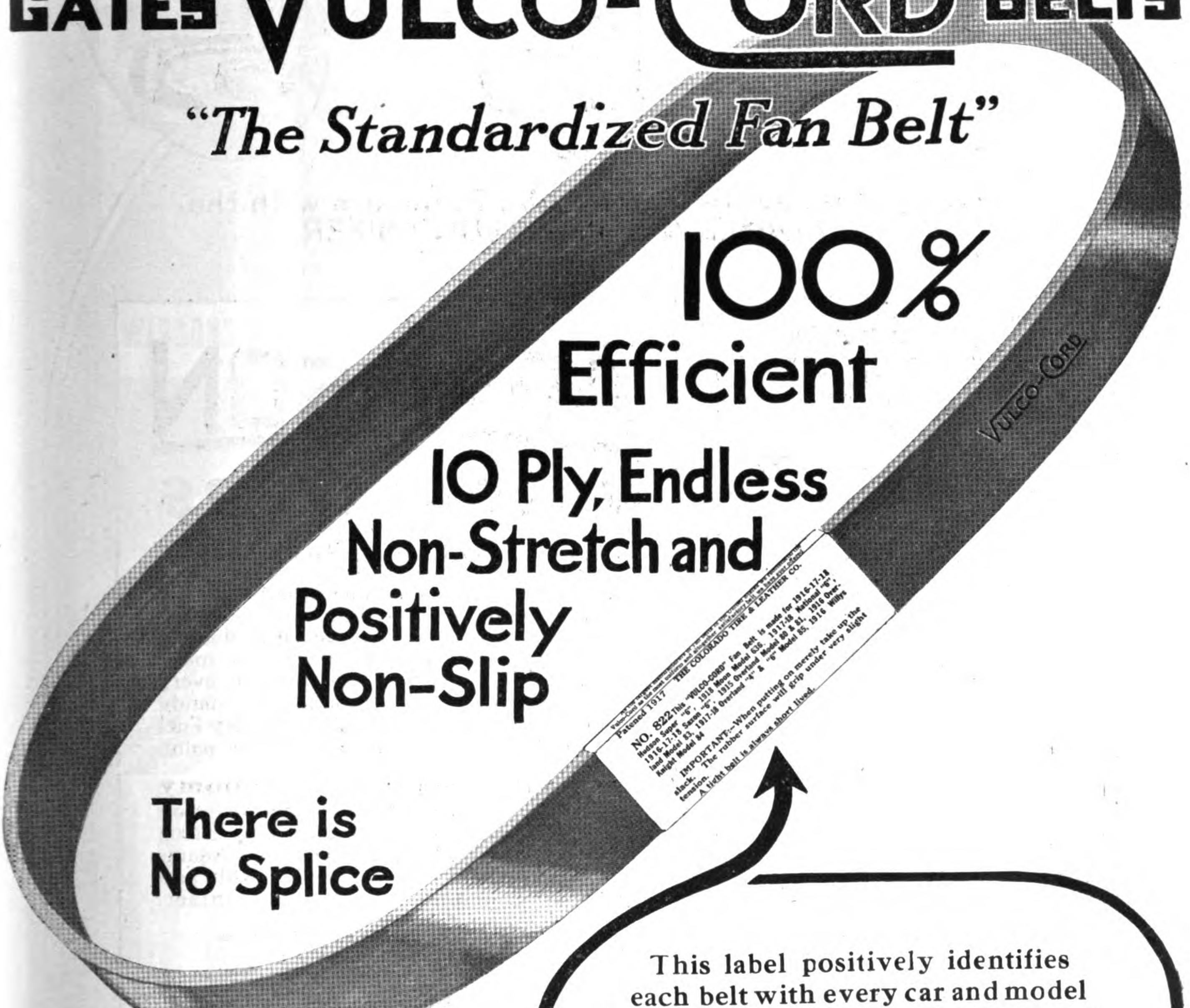
Yours very truly,
JENKINS VULCAN SPRING COMPANY.
T B Jenkins
President.

TBJ-REB

Mr Dealer:
I am certain a letter
from you to the Vulcan
people will prove to your
advantage Seymour Schiele

GATES VULCO-CORD BELTS

"The Standardized Fan Belt"


VULCO-CORD
Patened 1917 THE COLORADO TIRE & LEATHER CO.
NO. 822 This "VULCO-CORD" Fan Belt is made for 1916-17-18 Hudson Super "6", 1918 Moon Model 636, 1917-18 National "6", 1916-17-18 Saxon "6", 1915 Overland Model 80 & 81, 1916 Overland Model 83, 1917-18 Overland "4" & "6" Model 85, 1916 Willys Knight Model 84
IMPORTANT:—When putting on merely take up the slack. The rubber surface will grip under very slight tension.
A tight belt is always short lived.

100%
Efficient

10 Ply, Endless
Non-Stretch and
Positively
Non-Slip

There is
No Splice

This label positively identifies each belt with every car and model it serves. This is "*Standardization*" A Vulco-Cord Belt fits as many as 12 different makes and models.

Patented in U. S. and foreign countries

You can double your Fan Belt Business

85% of the Fan Belt Business, outside of Ford sizes, has been handled through the car manufacturers because you could not afford to stock individual belts for more than 2 or 3 out of the 184 well-known makes and models of cars. You now can get *this* business—which rightly belongs to you—by selling the *Standardized* Fan Belt.

A Gates Vulco-Cord Belt is built like a cord tire. It is ten-ply, endless, double strength and non-stretch. It positively grips the pulley and there is no slip—100% efficient.

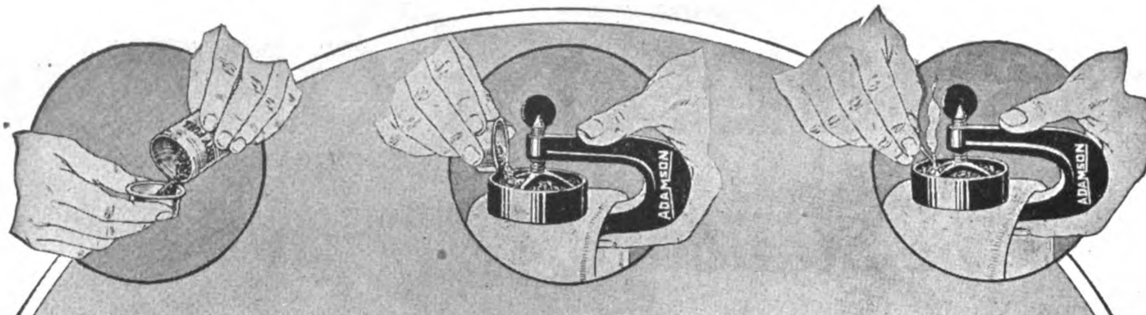
246 jobbers stock them and over 20,000 dealers are selling them, because they can serve every car in their territory from a stock of only 8 or 9 standardized sizes.

Order the "Standardized" Fan Belt from your jobber.

"The Best Fan Belt We Have Ever Made"

The Colorado Tire and Leather Company, Denver

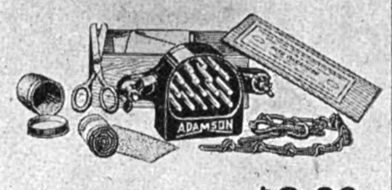
WORLD'S LARGEST MAKERS OF FAN BELTS



Using Dry Fuel to Repair Tube Puncture with the New ADAMSON 5-Minute VULCANIZER

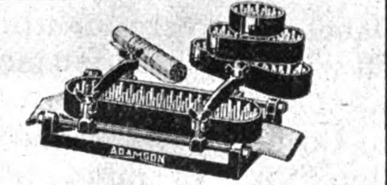
ADAMSON DRY-FUEL
ADAMSON

MODEL "E" $1.00



MODEL "U" $2.00

MODEL "T" $1.50



MODEL "S" $12.00

ADAMSON

VULCANIZERS

"The Line of Least Resistance"

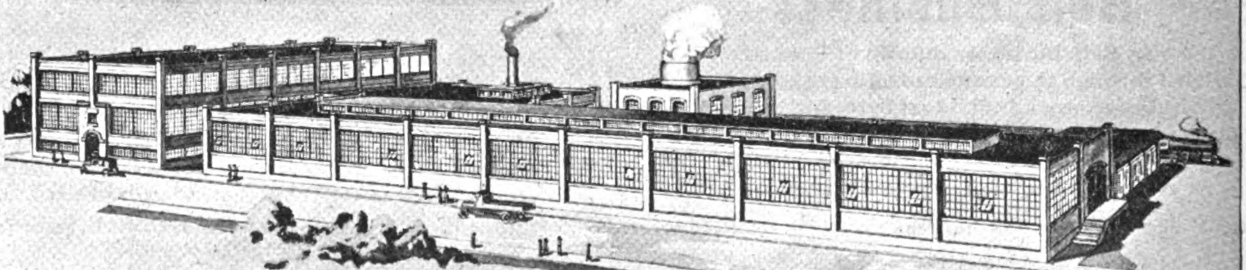
Adamsons are easy to sell because practically every motorist knows and prefers them for their extremely simple and durable design,—for the ease with which they make lasting repairs,—and for the fact that every model uses Common Gasoline, the handy fuel that is always dependable. The Dry Fuel feature of Model E is an extra selling point.

Meet the demand for Economy in tire expense with the complete Adamson line — a model for every tube and casing repair that a tourist can make, and Adamson Repair Gum for best results with any make or model of portable vulcanizer.

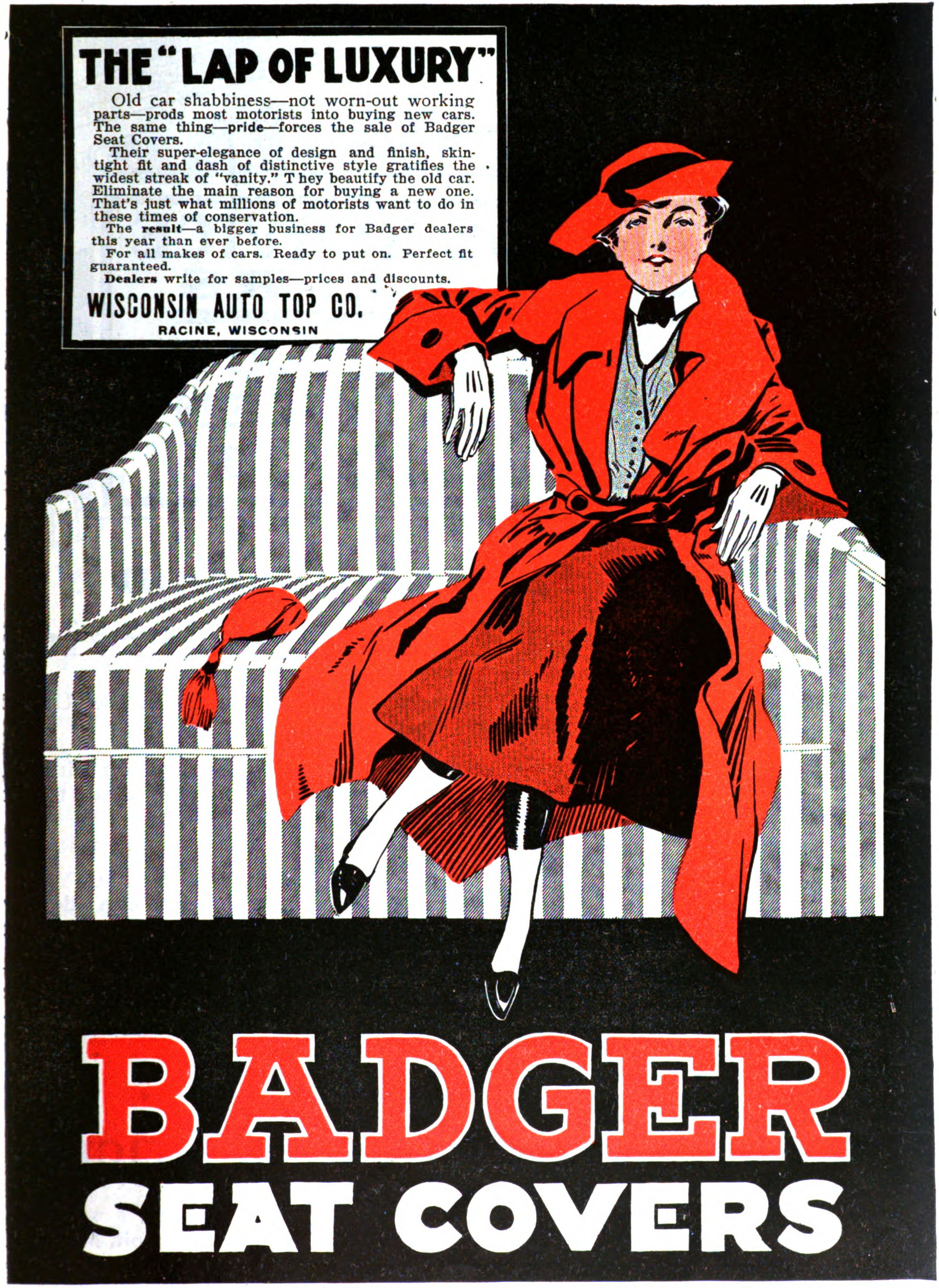
*To Show Adamsons is to Sell Them.
Put them up in front.
Write for Store Displays and Dealer Helps.*

Adamson Manufacturing Co.
EAST PALESTINE, OHIO

We also make Adamson Ford Brake Shoes, lined and unlined



NEW PLANT OF
ADAMSON MANUFACTURING CO.
EAST PALESTINE, OHIO.



THE "LAP OF LUXURY"

Old car shabbiness—not worn-out working parts—prods most motorists into buying new cars. The same thing—**pride**—forces the sale of Badger Seat Covers.

Their super-elegance of design and finish, skin-tight fit and dash of distinctive style gratifies the widest streak of "vanity." They beautify the old car. Eliminate the main reason for buying a new one. That's just what millions of motorists want to do in these times of conservation.

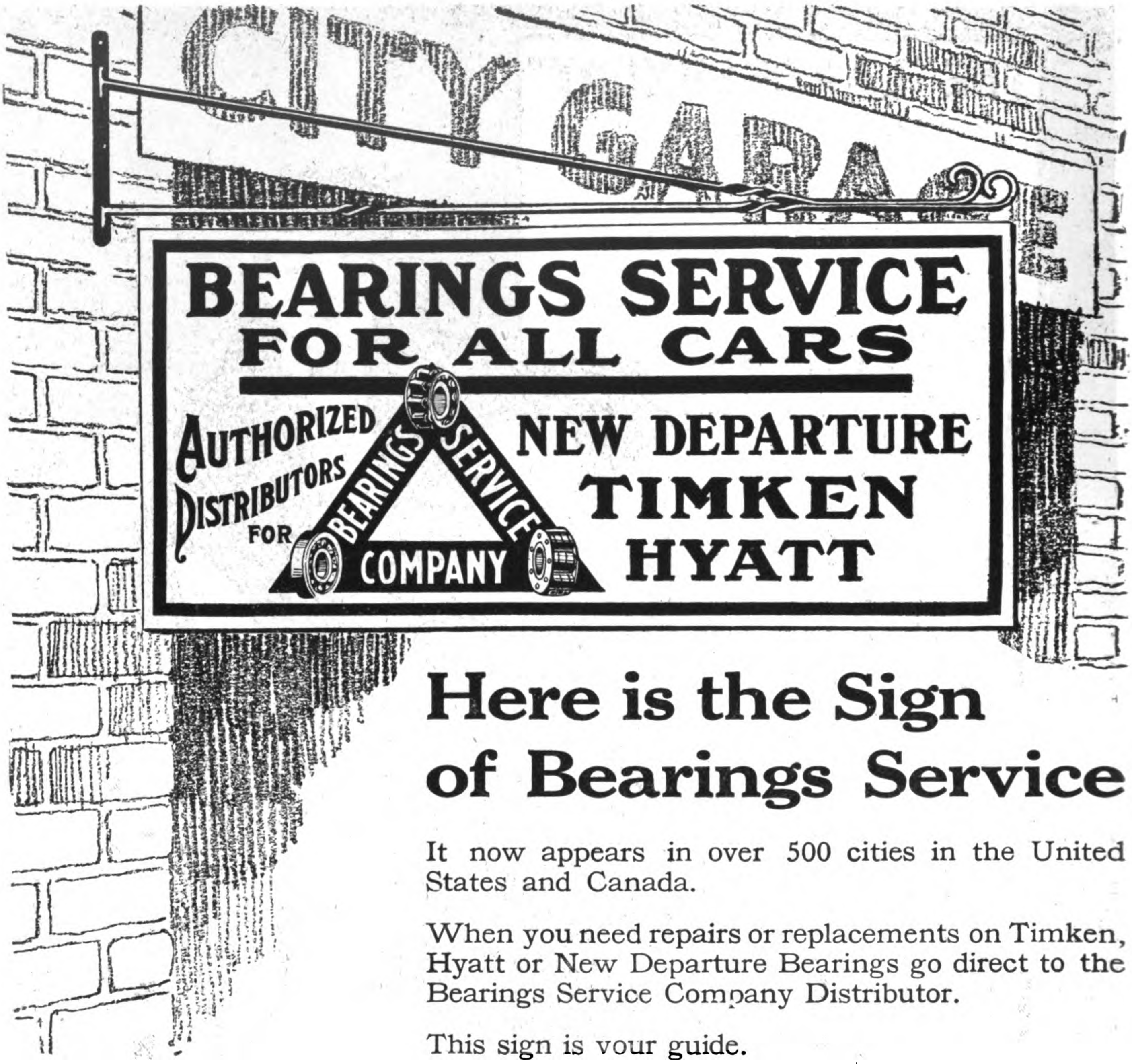
The **result**—a bigger business for Badger dealers this year than ever before.

For all makes of cars. Ready to put on. Perfect fit guaranteed.

Dealers write for samples—prices and discounts.

WISCONSIN AUTO TOP CO.
RACINE, WISCONSIN

BADGER
SEAT COVERS


CITY GARAGE
BEARINGS SERVICE
FOR ALL CARS
AUTHORIZED DISTRIBUTORS FOR
BEARINGS SERVICE COMPANY
NEW DEPARTURE
TIMKEN
HYATT

Here is the Sign of Bearings Service

It now appears in over 500 cities in the United States and Canada.

When you need repairs or replacements on Timken, Hyatt or New Departure Bearings go direct to the Bearings Service Company Distributor.

This sign is your guide.

It is the visible evidence by which you can identify an authorized distributor of the Bearings Service Company.

It assures you prompt, efficient service on the three leading makes of anti-friction bearings—Timken—Hyatt—New Departure.

Authorized National Service

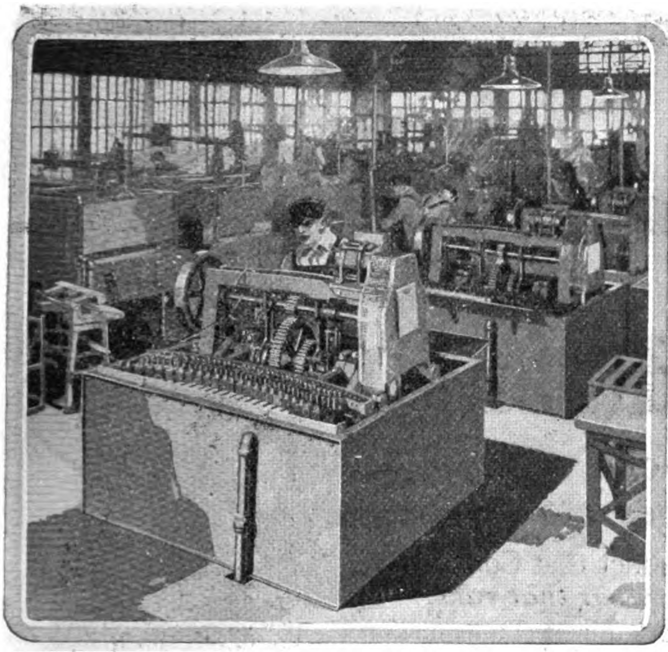
BEARINGS SERVICE COMPANY

General Offices: **Detroit, Michigan**

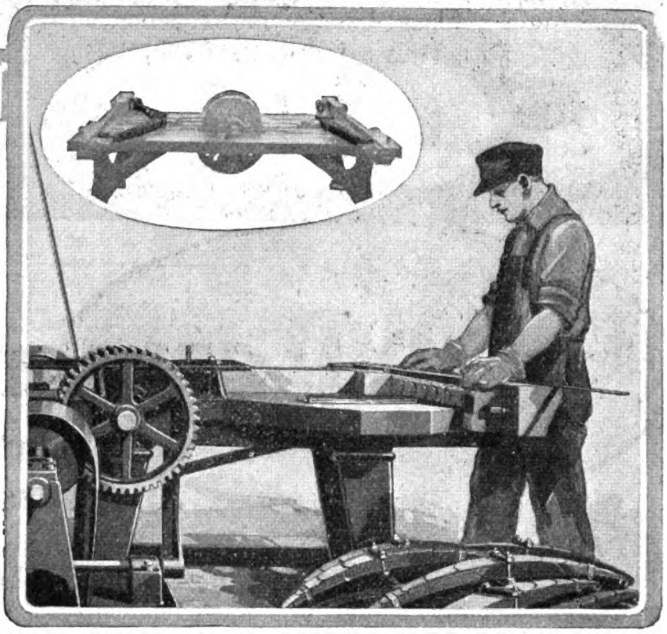
Direct Branches

New York
Detroit
Chicago
Boston
San Francisco
Los Angeles
Atlanta
Seattle
Minneapolis
Kansas City
Dallas
Cleveland
Denver
Indianapolis
Rochester
Philadelphia
St. Louis
New Orleans
Omaha
Pittsburgh
Portland, Ore.
Toronto, Can.

Authorized Distributors in Over 500 Cities



FORMING and TEMPERING



TESTING FOR ACCURACY and ENDURANCE

Resiliency·Endurance·Accuracy

A REPLACEMENT SPRING, to be worth its price must combine three things: Resiliency, Endurance and Accuracy. And of these three Accuracy is the most essential.

A spring must "fit like a glove" if it is to be resilient and durable. It must "fit like a glove" if it is to give satisfactory service.

Your business as a repair man depends on your ability to give satisfaction to customers. Our business depends on your success and patronage.

Knowing this, we have built our business on one policy: Satisfaction to Car Owners—Satisfaction and Profit to Dealers.

The Harvey Process is but a part of the Harvey Policy. Harvey Springs are scientifically made from the best spring steel obtainable. They are so carefully made and so thoroughly tested in design, material and workmanship that Resiliency, Endurance and Accuracy are absolutely assured.

If you are not already selling the Harvey Springs you should get in touch with us at once. It means satisfaction to your customers and profit to you.

There's a Harvey Jobber near you. Drop us a card and we will send you his name and our Spring Book containing specifications etc. of over 900 kinds of springs. Write today, you may need Harvey Help tomorrow.

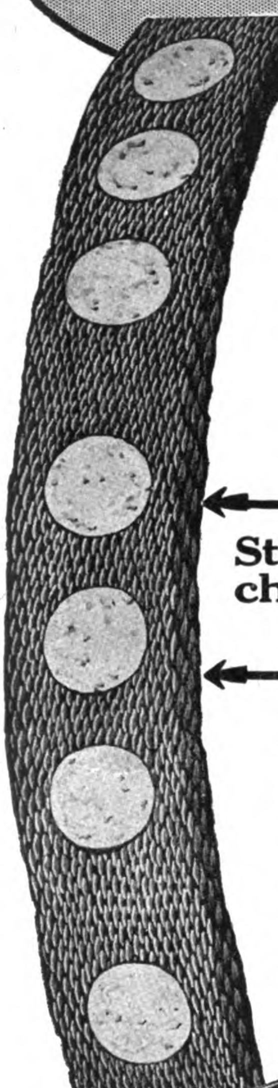
Harvey Spring & Forging Co.

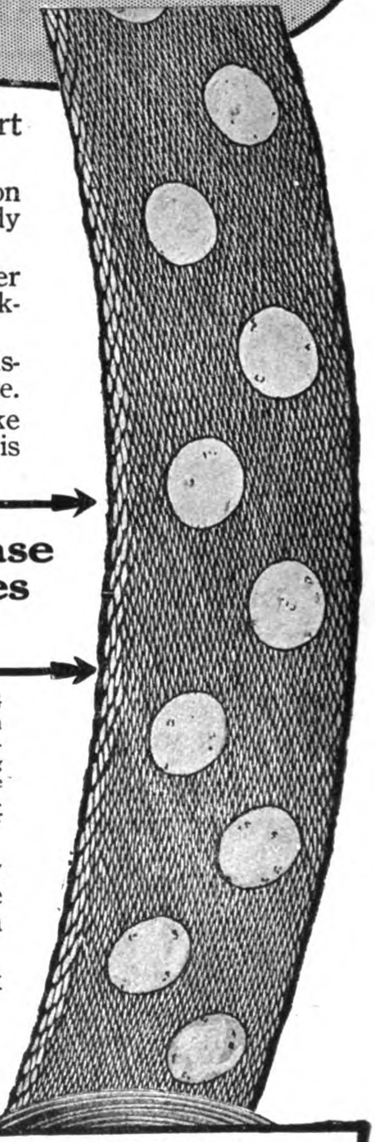
915 17th St. **Racine, Wis.**

CORK INSERT

for FORD cars and for BIG cars

for trucks and passenger cars





WE want to make clear the fact that Cork Insert Linings are made ***for every car that runs.***

For Ford cars there's the Cork Insert Transmission Lining. Sold in boxes containing set of three, all ready for installing.

Then there's Cork Insert Brake Lining for all the other cars, sold by the foot from the roll. Made in two thicknesses and thirteen widths.

At the left is pictured a piece of Cork Insert Transmission Lining for Fords. Below it is shown the package.

At the right is pictured a piece of Cork Insert Brake Lining used for cars other than Fords, while below is represented a roll of the lining.

Stops grab, slip, chatter, in Ford transmission

Cork Insert Transmission Lining for Fords stops the grabbing and slipping—vibration and chattering. Requires less pressure on the pedal. Makes the Ford Brake BRAKE. Saves the Ford rear end. Outwears several sets of ordinary linings.

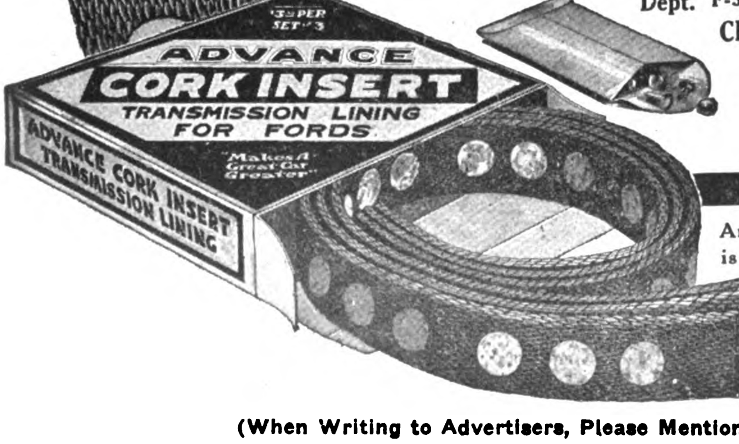
Oil, slip, grease proof—insures a safe brake

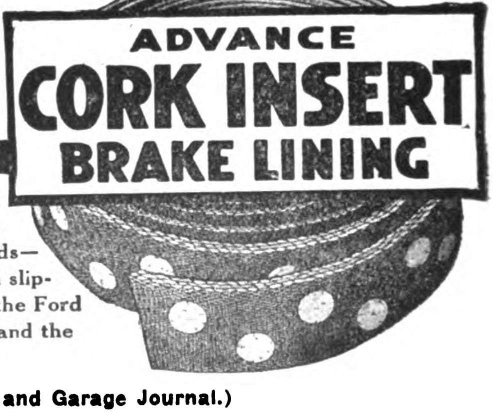
CORK INSERT BRAKE LINING has the highest co-efficient of friction obtainable in a brake lining. It produces smoother, more positive braking action. Less pressure is needed on the pedal. It is unaffected by oil or grease. No grab, slip, SQUEAK. Gives longer wear and better control of brakes.

DEALERS: The Cork Insert line is a wonderful money maker for the trade. It supplies a staple need with products that serve the user better and mean more profitable business for the dealer.

Any jobber will supply you with Cork Insert. Ask the next jobber's salesman who comes in about it.

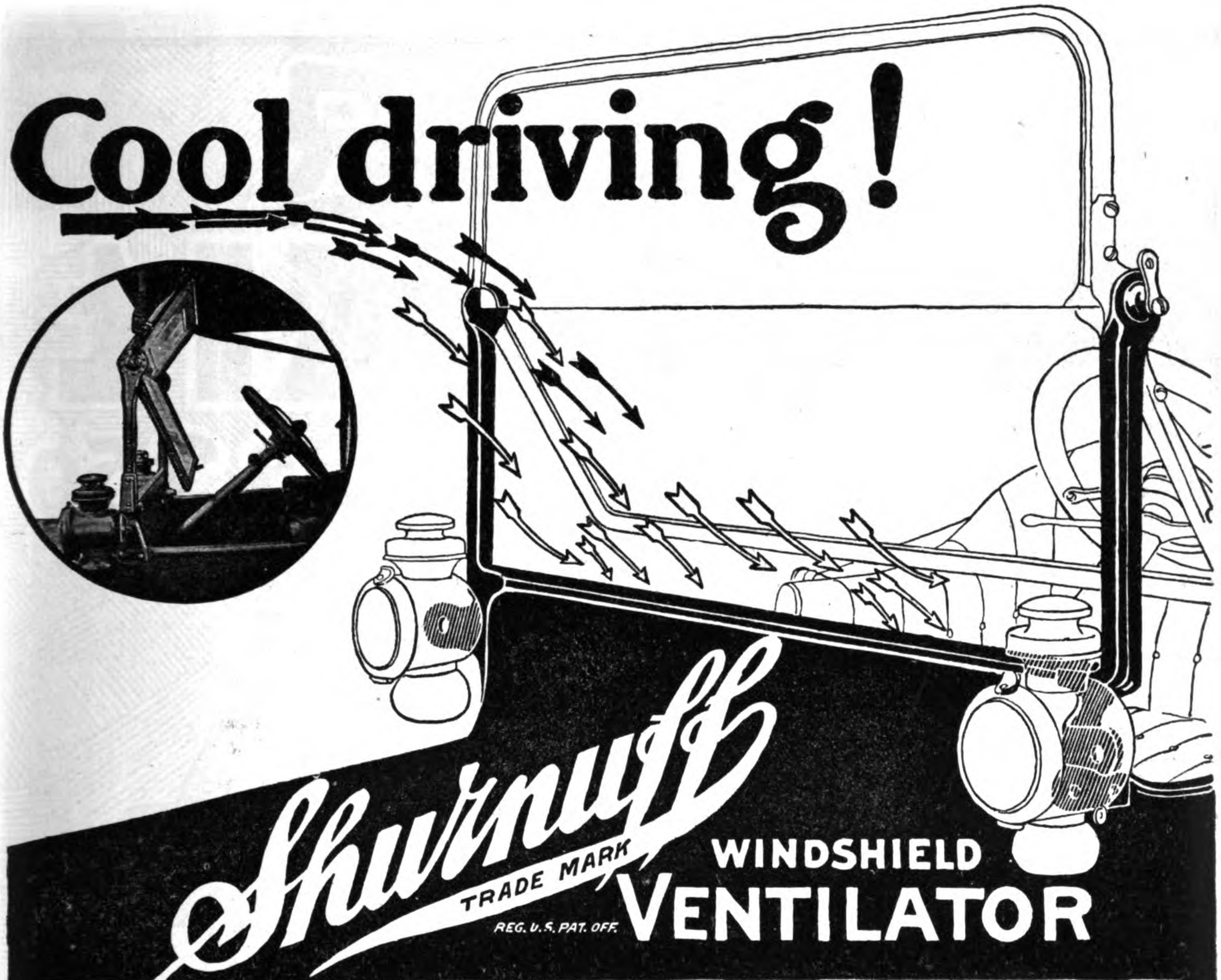
ADVANCE AUTOMOBILE ACCESSORIES CORPORATION
Dept. F-3, 56 E. Randolph Street
Chicago, Ill.


3 PER SET 3
ADVANCE
CORK INSERT
TRANSMISSION LINING
FOR FORDS
"Makes A Great Car Greater"
ADVANCE CORK INSERT TRANSMISSION LINING



ADVANCE
CORK INSERT
BRAKE LINING

Another big seller is Cork Insert Fan Belts for Fords—they stop all slipping—keep the Ford fan fanning and the engine cool.

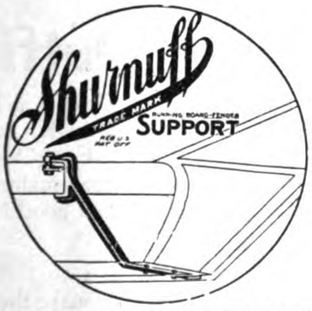

Cool driving!
Shurnuff
TRADE MARK
REG. U.S. PAT. OFF.
WINDSHIELD
VENTILATOR

Are You Handling This Fast Selling Ford Fixture ?

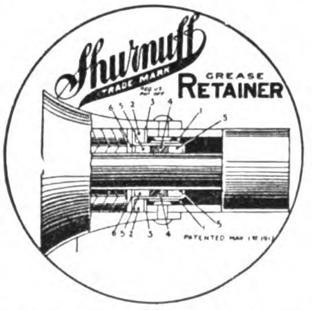
You don't have to be told how hot it gets in the front part of a Ford in summer and how much every Ford owner wishes he could open the windshield from the bottom and bring the breezes down to his feet and legs. In the Shurnuff Ventilator Windshield you can offer Ford owners all the ventilating and rain and dust-tight features that are given by the windshields of high priced cars. It consists of two black enameled uprights so shaped as to make the sides of the windshield rain-proof. A metal and rubber strip fastens to the cowl and makes it rain-proof at the bottom also.

Can be installed in 30 minutes.
The Ford owner can do the work.

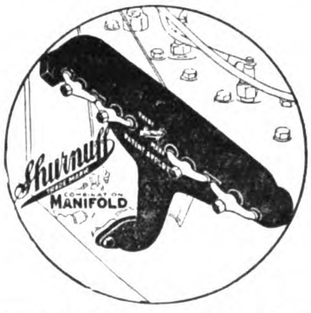
Each Ventilator set is packed in a labeled carton and makes a good showing on the shelf. Six sets are packed in a dealer's case. Price retail per set complete $7.50, $7.75 west of Rockies, $11.25 in Canada. Order a half dozen cases from your jobber today—


Shurnuff
TRADE MARK
REG. U.S. PAT. OFF.
RUNNING BOARD-FENDER
SUPPORT

Shurnuff Running Board Fender Support stops sagging of running board, eliminates excessive vibration of front fender, reduces shocks and stabilizes the car. Needed on all Fords. Saves battery from damaging vibration. **Price per pair $4.50. West of Rockies $4.75. In Canada $6.75.**


Shurnuff
TRADE MARK
GREASE
RETAINER
PATENTED MAY 1st 1917

Shurnuff Grease Retainers. Grease leaking from rear axle of Fords rots the tires, causes brakes to lose their efficiency and makes a dust-collecting mess on wheels, brake and axle housing. The Shurnuff **effectively** stops these grease leaks. **Price per pair 90c. In Canada $1.35.**


Shurnuff
TRADE MARK
COMBINATION
MANIFOLD

Shurnuff Combination Manifold combines intake and exhaust so that heat from latter dries incoming gasoline and vaporizes it perfectly. Result: Smoother running, more power, more miles per gallon, less carbon. **Price $9. West of Rockies $10. In Canada $12.50.**

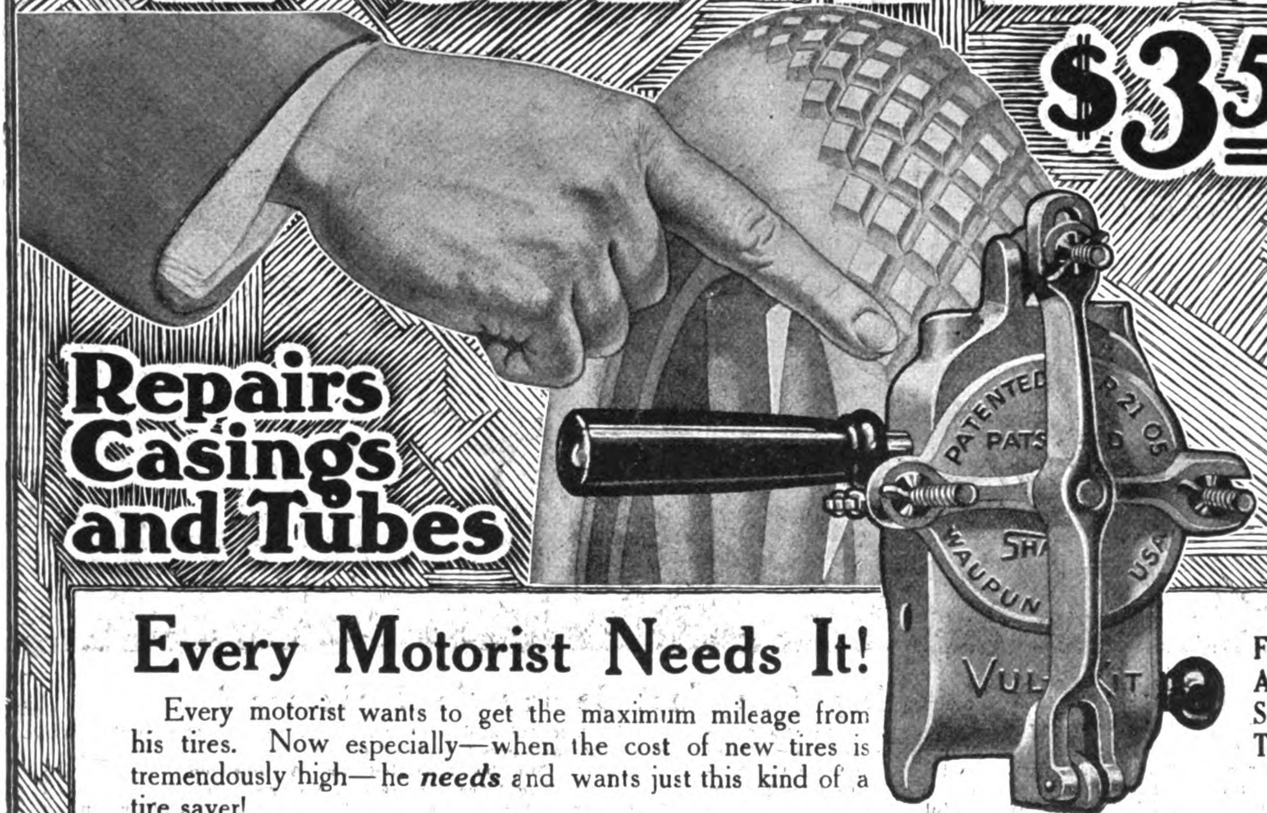
DEALERS: Shurnuff Necessities for Ford cars are sure-enough fast sellers. All guaranteed. All packed in attractive cartons for self display. Carried by jobbers everywhere. Write for literature.

SHURNUFF MFG. CO., Dept. E ST. LOUIS, MO

SHALER

Vul-Kit

$3.50



Repairs Casings and Tubes

For Any Size Tire

Every Motorist Needs It!

Every motorist wants to get the maximum mileage from his tires. Now especially—when the cost of new tires is tremendously high—he ***needs*** and wants just this kind of a tire saver!

The SHALER Vul-Kit fits any size tire—casing or tube. It mends the holes and cuts in the casing that tend to rot the fabric and cause blowouts. Will repair any puncture, tear or cut in the tube. It is simple and easy to operate—anyone can get perfect results without previous experience.

Make Money Selling This Popular Outfit

No new car is supplied with a tire saving device—every car owner should have a SHALER Vul-Kit in his tool box. It is easy to sell—our advertising acquaints motorists everywhere with the SHALER Vul-Kit and they call for it by name. Just let them know that you sell it—and they'll quickly step in and buy it. Every Vul-Kit you sell leaves you a good profit—besides it gives you a continuous profit on the resale of repair material and supplies which the motorist must have—and it brings car owners to your place, who also buy other goods!

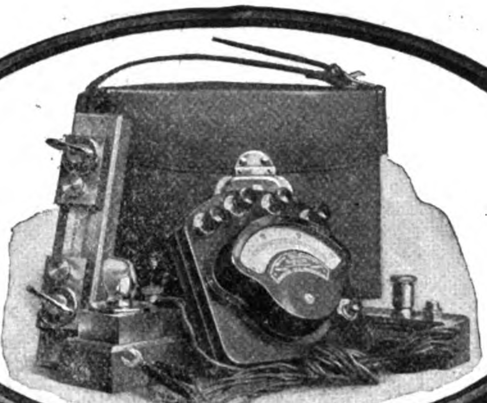
Every Jobber Sells It—Ask Yours

Motorists in your vicinity will insist on having the SHALER Vul-Kit. Don't let your competitor make these profits that should come to you. Write your jobber today for prices and dealer selling helps—or order a supply of Vul-Kits NOW so that you can begin making these big extra profits at once.

Catalog of Complete Line of SHALER Vulcanizers for Garages, Repair Shops and Motorists Mailed FREE on Request.

C. A. Shaler Company, 253 Fourth Street, Waupun, Wisconsin

Oldest and Largest Manufacturers of Vulcanizers.



Bespeaking Patience

It has become necessary to advise prospective purchasers of the Weston Model 280 Garage Testing Instrument that deliveries can no longer be made promptly. Under present war conditions, there are unusual requirements which must receive our consideration in advance of commercial orders.

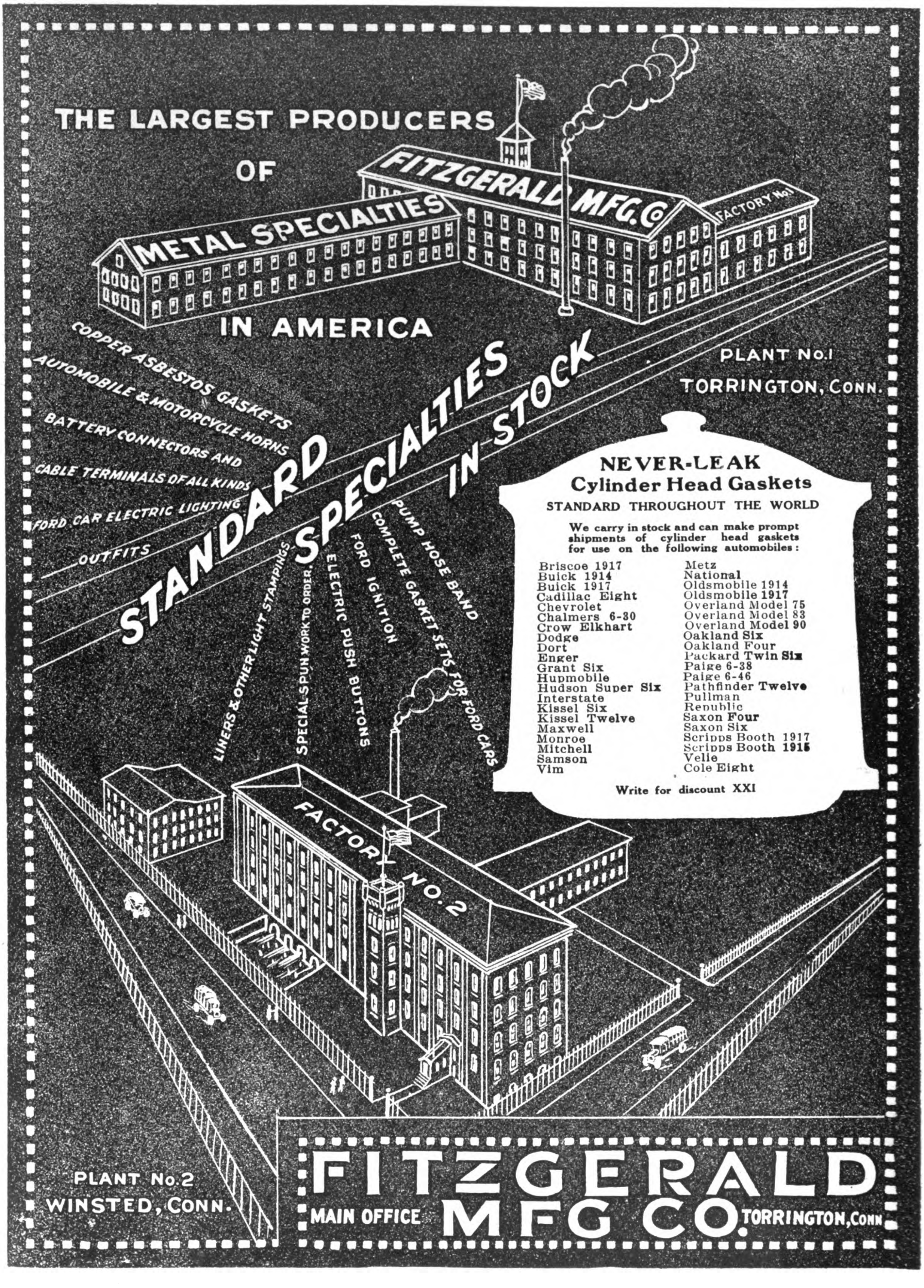
For this reason, we can accept your order only on the basis of delivery when possible. We suggest that you place it as early as you can.

Appreciating fully the needs of our customers and that the radical superiority of the Weston Model 280 Garage Testing Instrument is now well known to Garage and Service Station men, we promise to execute orders in the order of their receipt and as quickly as conditions will permit.

We are confident that this frank explanation of the situation will be accepted by prospective purchasers in the co-operative spirit in which it is submitted.

WESTON ELECTRICAL INSTRUMENT CO.
103 Weston Avenue Newark, N. J.

23 Branch Offices in the Larger Cities.



THE LARGEST PRODUCERS
OF
METAL SPECIALTIES
IN AMERICA

FITZGERALD MFG. CO.
FACTORY No. 1

PLANT No. 1
TORRINGTON, CONN.

STANDARD SPECIALTIES IN STOCK

COPPER ASBESTOS GASKETS
AUTOMOBILE & MOTORCYCLE HORNS
BATTERY CONNECTORS AND
CABLE TERMINALS OF ALL KINDS
FORD CAR ELECTRIC LIGHTING
OUTFITS
LINERS & OTHER LIGHT STAMPINGS
SPECIAL SPUN WORK TO ORDER.
ELECTRIC PUSH BUTTONS
FORD IGNITION
COMPLETE GASKET SETS FOR FORD CARS
PUMP HOSE BAND

NEVER-LEAK
Cylinder Head Gaskets

STANDARD THROUGHOUT THE WORLD

We carry in stock and can make prompt shipments of cylinder head gaskets for use on the following automobiles:

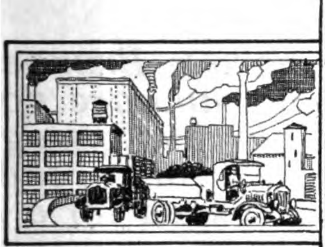
Briscoe 1917
Buick 1914
Buick 1917
Cadillac Eight
Chevrolet
Chalmers 6-30
Crow Elkhart
Dodge
Dort
Enger
Grant Six
Hupmobile
Hudson Super Six
Interstate
Kissel Six
Kissel Twelve
Maxwell
Monroe
Mitchell
Samson
Vim
Metz
National
Oldsmobile 1914
Oldsmobile 1917
Overland Model 75
Overland Model 83
Overland Model 90
Oakland Six
Oakland Four
Packard Twin Six
Paige 6-38
Paige 6-46
Pathfinder Twelve
Pullman
Republic
Saxon Four
Saxon Six
Scripps Booth 1917
Scripps Booth 1916
Velie
Cole Eight

Write for discount XXI

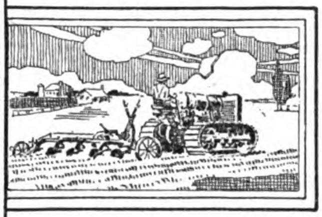
FACTORY No. 2

PLANT No. 2
WINSTED, CONN.

FITZGERALD
MAIN OFFICE MFG. CO. TORRINGTON, CONN.



Annual
Exhibit of
TRUCKS, TRACTORS
& ACCESSORIES
Chicago
Municipal Pier,
Sept. 14 to 21,
· 1918 ·



War Time Exposition of Essentials

An inclusive exposition participated in by leading automotive manufacturers as a means to stimulating American industry in meeting the exacting demands of war.

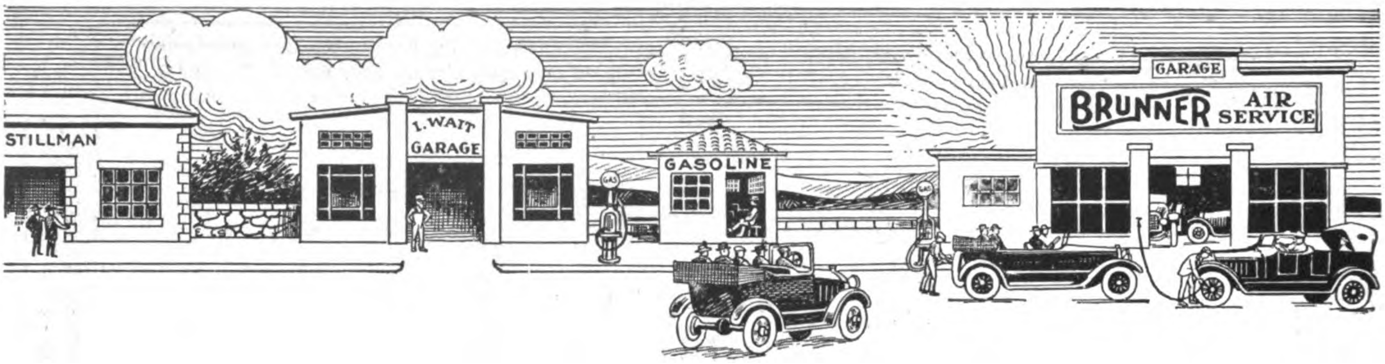
TRUCKS—This will be America's most representative war-time truck show—embracing the giants of transcontinental fame and the little local delivery hustlers. Trucks are in the lime-light because of their great service at the front and at home—and all the best trucks will be shown at the Municipal Pier from September 14 to 21.

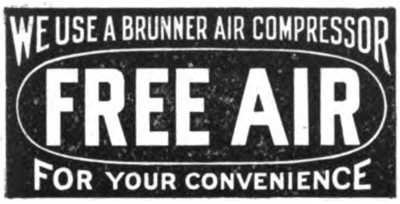
TRACTORS—Greatest ally to the Allies—all the giants of the farm and battlefield on display. Small tractors, large tractors—America's representative tractor manufacturers will participate in this great exposition—Municipal Pier, Chicago, September 14 to 21, 1918—a stimulant to the broader agriculture necessary to meet war-time needs.

ACCESSORIES—A big part in war-time conservation is being played by automotive accessories which increase efficiency—mileage and service—and decrease cost of upkeep and operation. The accessories shown at The Pier, September 14 to 21, will bring home to everyone the tremendous strides which American manufacturers have made toward helping to win the war.

DIRECTION OF
Automotive & Accessories Exposition Inc.

Write for floor plans and further details
c/o Hotel New Southern, 13th Street at Michigan Ave., Chicago

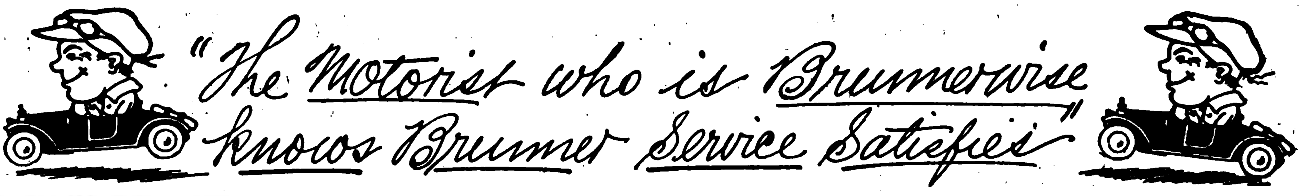



WE USE A BRUNNER AIR COMPRESSOR
FREE AIR
FOR YOUR CONVENIENCE

Mr. Garageman: If you have a Brunner Air Compressor in your garage and are not displaying a Brunner Sign on your garage advertising the fact that you are rendering Brunner service, you should send for a Brunner Sign without delay.

ADVERTISE YOUR BRUNNER SERVICE AND SECURE YOUR FULL MEASURE OF THE BRUNNERWISE MOTORISTS PATRONAGE

Thousands of garagemen have been advertising Brunner Service by means of the Brunner Sign for many years and Brunner Service has consistently demonstrated its absolute dependability to thousands of motorists for many years, so that these Brunnerwise Motorists now recognize the Brunner Sign as a sure sign of absolutely dependable service wherever they see it.


"The Motorist who is Brunnerwise
knows Brunner Service Satisfies"

In this way the great advertising value of the Brunner Sign has been convincingly demonstrated to the garageman in actual service for many years, and the thorough dependability of Brunner Service has likewise been demonstrated to the motorist.

NO GARAGEMAN WITHOUT A BRUNNER AIR COMPRESSOR CAN AFFORD TO OVERLOOK THIS SPLENDID OPPORTUNITY OF SECURING THE PATRONAGE OF THE BRUNNERWISE MOTORIST —A BRUNNER AIR COMPRESSOR WILL DO IT.

WHEN YOU BUY A BRUNNER AIR COMPRESSOR

You buy a high grade practical compressor designed and developed for the garageman's use in the largest and best equipped exclusive garage air compressor plant in the world, and backed by a responsible organization whose entire time and attention has always been exclusively devoted to the garageman's interests.

No attachments necessary to help the motor to start against full load.

No cages necessary to keep the valves from falling into the cylinder.

No restriction of lubrication to invite trouble and no claims of impossible performances—but—simply the same good substantial business proposition it has always been for the garageman.

Write for No. 15 Catalogue and Name of Brunner Jobber Covering Your Town

BRUNNER MANUFACTURING COMPANY

General Offices and Plant:
Utica, N. Y.

Cincinnati Branch:
Cincinnati, Ohio.

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., JUNE, 1918 No. 2

Headlight Tests Under New York Law

Secretary of State Will Establish Testing Laboratory Which Will Certify As To Whether A Device Is Legal and As To Conditions Necessary for Its Operation

Naturally great interest is being shown in the approaching tests of head lamps and lighting devices to be held under the auspices of the office of secretary of state of New York to determine which types meet the legal requirements of that state under the provisions of chapter 540 of the Laws of New York of 1918.

A hearing has been called for Tuesday, June 25, at the office of Secretary of State Hugo and all concerns who have submitted headlights and headlighting devices to be tested have been asked to have a representative present to discuss the proposed uniform specifications in relation to headlights.

The conditions to be fulfilled to comply with the intent of the new law are specified as follows for the purpose of testing:

1. Any pair of head lamps under the conditions of use must cast a beam which when measured on a level surface at a distance of 200 feet directly in front of the car and at some point between the level surface and a point 42 inches above this surface, is not less than 1200 apparent candlepower.

2. Any pair of head lamps under the conditions of use shall cast a beam which, when measured at a distance of 100 feet directly in front of the car, and at a height of 60 inches above the level surface, does not exceed 2400 apparent candlepower, nor shall this value be exceeded at a greater height than 60 inches.

3. Any pair of head lamps under the conditions of use shall cast a beam which, when measured at a distance of 100 feet ahead of the car, and seven feet or more to the left of the axis of the same, and at a height 60 inches or more above the level surface, does not exceed 800 apparent candlepower.

Laboratory Test Required.

In order to determine whether any particular device conforms to these requirements, it shall be subjected to laboratory tests according to the following specifications:

Two pairs of samples of the device submitted shall be subjected to test. In the case of front glasses the samples shall be of 9¼-inch diameter.

Reflector Requirements.

The reflectors used in connection with the laboratory tests shall be of standard high grade manufacture of 1.25-inch focal length, with clean and highly polished surfaces, and as nearly truly paraboloidal in form as practicable, and as approved for this purpose by the national bureau of standards.

The manufacturer of the device shall be given due notice of the date and place of test. Manufacturers' representatives present at the test shall be privileged to adjust their devices in any way which represents an ordinary and legitimate adjustment, including tilting the lamps or reflectors, which can be carried out by purchasers of the device, or such adjustment may be made by the laboratory expert acting on the instructions of the manufacturer. The character of the adjustment so made shall be carefully noted and stated in the report as manufacturer's adjustment.

How Tests Are Made.

The tests shall be as follows:

Test 1. Four-point test of pairs of samples.

A pair of testing reflectors, mounted similarly to the head lamps on a car, shall be set up in a dark room at a distance of not less than 60 feet nor more than 100 feet from a vertical white screen. If a testing distance of 100 feet is taken the reflectors shall be set 28 inches apart from center to center and if a shorter testing distance is taken the distance between reflectors shall be proportionately reduced. The axes of the lamps shall be parallel and horizontal, or as tilted in accordance with manufacturer's adjustment. The intensity of the combined beams shall then be measured with each pair of samples in turn, with the reflectors fitted with a pair of each of the following types of incandescent lamps, in turn:

(1) Vacuum type, 6-8 volts, 17 mscp., G-12 bulb.

(2) Gas filled type, 6-8 volts, 20 mscp., G-12 bulb.

The lamps shall be adjusted to give their rated candlepower. Measurements shall be made at the following points at the surface of the screen:

A. In the median vertical plane parallel to the lamp axes, on a level with the lamps.

B. In the same plane one degree of arc below the level of the lamps.

C. In the same plane one degree of arc above the level of the lamps.

D. Four degrees of arc to the left of this plane and one degree of arc above the level.

Specifications of Samples.

In an acceptable device both pairs of samples shall conform to the following specifications for observed apparent candlepower:

Points A and B. At at least one of these points the apparent candlepower shall not be less than 1200.

Point C. The apparent candlepower shall not exceed 2400.

Point D. The apparent candlepower shall not exceed 800.

Provided, however, that if the test indicates that a device which is unacceptable with either of the test lamps will come within the specifications with lamps of another candlepower or of the other type, the device may be passed with corresponding limitations as to the incandescent lamps to be used in connection with it.

Test 2. Complete test of single sample.

A single sample taken as an average representative of the device as manufactured, shall be submitted to a complete test with a vacuum incandescent lamp of 17 candlepower 6-8 volt rating in a G-12 bulb. This test shall show its beam characteristics by actual measurements made according to recognized and exact methods.

One pair of the samples submitted

shall be retained by the testing laboratory for purpose of future reference and as samples of construction, and the other pair shall be returned to the office of the secretary of state.

Report on Result of Test.

The report of the tests shall be rendered in duplicate to the secretary of state, and shall be signed or initialed not only by the expert making the test, but also by a person representing the more general responsibility of the institution making the test. It shall include a statement by the testing laboratory as to whether the device has passed or has not passed the specifications as herein given; also, a statement as to the maximum or minimum candlepower to be used with the same, and as to the other conditions necessary in the operation of the device in such a way that it will comply with the requirements of this specification.

RESTRICTION UNNECESSARY BY REASONABLE USE OF FUEL.

The United States Fuel Administration, through Mark L. Requa, director of the oil division, has issued the following statement in regard to gasoline:

"Up to the present time there has been sufficient supply of gasoline to meet all requirements; but in order to be prepared for any shortage, should it arise, plans are being considered by the oil division of the Fuel Administration, in cooperation with the automobile industry and the National Petroleum War Service Committee, for the purpose of determining the most satisfactory method of gasoline conservation.

"It is not expected in any event that it will be necessary to restrict normal consumption for freight vehicles, and provided there is a reasonable conservation by all concerned it may not be necessary to seriously interfere with pleasure cars and motor boats.

"It must be borne in mind, however, that the paramount use for gasoline is for war purposes, all of which requirements will be supplied. The volume of this will largely govern the situation.

"It seems possible that rational conservation by the public will render government action unnecessary."

The National Automobile Chamber of Commerce is cooperating with Mr. Requa and W. Champlin Robinson, director of oil conservation, to help in this conservation movement. While there is need for saving there is no suggestion of any necessity for curtailing the use of passenger cars on Sunday or any other day, nor the issuance of gasoline cards to limit the amount to be sold to each individual owner. War interests will come first, but as Mr. Requa indicates, with rational conservation by the public, there should be ample for general needs.

The production of gasoline in 1917 was 65,000,000 barrels of 42 gallons each. The first quarter of this year the production was 17,384,000 barrels, as against 13,700,000 barrels for the same period of 1917. On April 1 there were 12,500,000 barrels of gasoline in storage.

N. A. A. A. J. Will Hold Exhibit With Convention Next Fall

Committee Appointed At Mid-Summer Meeting Held at Hot Springs—Change of Name Proposed

At the mid-summer convention of the National Association of Automobile Accessory Jobbers held at Hot Springs, Va., the delegates indorsed the business exhibit which is to be held in connection with the 10-day convention to be held in Medinah Temple, Chicago, beginning Monday, Oct. 28.

Action was also taken leading toward a change in the name of the organization. It is proposed that the name of International Automotive Equipment Association be adopted in the fall as being more significant of the scope and activities of the organization, which now embraces members in the United States, Canada and England.

The convention closed on Thursday, June 13, following the auction sale of a pair of socks knitted and donated by Mrs. L. Wolff of Chicago. Every delegate made a bid and the understanding was that the amount bid by each was to be paid. R. A. Stranahan of the Champion Spark Plug of Toledo was awarded the socks on a bid of $3986.33. A total of $10,265.83 was raised, all of which has been turned over to the Red Cross.

The following concerns were elected to membership in the association:

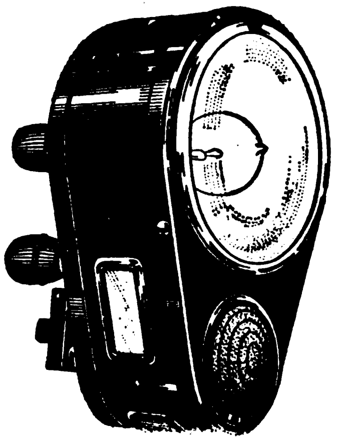
Jobbers—Archer & Wiggins Co., Portland, Ore.; Child, Day & Churchill, Inc., Spokane, Wash.; L. Frank Saddlery Co., San Antonio, Texas; Hans Johnsen, Dallas, Texas; McCauley-Ward Motor Supply Co., Waco, Texas; Motor Accessory and Tire Co., Pueblo, Col.; James S. Remick Co., Inc., Sacramento, Cal.; Salt Lake Hardware Co., Salt Lake City, Utah; S. Smith & Sons, Ltd., London England; (attention of Mr. J. H. Rose, 154 Nassau St., New York City;) Whiton Hardware Co., Seattle, Wash.

Manufacturers—Bonney Vise and Tool Works, Inc., Allentown, Pa.; The Dayton Wire Wheel Co., Dayton, O.; Edison Lamp Works of General Electric Co., Harrison, N. J.; Howe Manufacturing Co., Chicago, Ill.; Kelsey Wheel Co., Ltd., Windsor, Ontario, Can.; Krom-Nik Gear Co., Chicago, Ill.; Lane Brothers Co., Poughkeepsie, N. Y.; Liberty Accessories Corporation, St. Louis, Mo.; Luthy Hydrometer Co., Detroit, Mich.; Motor Products Corporation, Ltd., Walkerville, Ontario, Canada; Mutual Wheel Co., Moline, Ill.; National Spring Co., Newcastle, Ind.; Osgood Lens and Supply Co., Chicago, Ill.; Pyrene Manufacturing Co., New York, N. Y.; Racine Rubber Co., Racine, Wis.; Russell Manufacturing Co., Middleton, Conn.; S. & M. Lamp Co., Los Angeles, Cal.; U. S. Auto Bumper Co., Chicago, Ill.; Wire Wheel Corporation of America, New York, N. Y.

REAR SEARCHLIGHT AND TAIL LIGHT MEETS BIG DEMAND.

Thousands of motorists have felt the need of a rear light strong enough to reveal objects for some distance back of the car, and as a means of illuminating signs or land marks that have been passed in the night without turning about to secure the light from the main lamps. This demand has been met in the King safety tail light, a combined searchlight and tail light, manufactured by the King-Bull Manufacturing Co., Chicago, Ill.

The King safety tail light prevents accidents when backing auto on narrow or unknown country roads, backing into a garage or dark alley. By simply pushing a switch button, which may be located to suit the convenience of the driver, this safety tail light throws a white light 50 feet back of car and from fence to fence of the widest road, and shows any obstructions and ditches at night that otherwise would not be visible.



King Safety Tail Light.

The King safety tail light was developed as the result of a car backing over an embankment at night. It is designed to add to the appearance of any car and replaces any single or double contact tail light that is electrically controlled. The searchlight, which is controlled from a switch and the regulation tail light, are in one compact lamp. Searchlight can be turned on or off at will.

The rear end searchlight lens is four inches in diameter and the red tail light lens is two inches in diameter. Three windows at the base of the lamp throw a bright light on license plate. Wiring connections are finely finished in hard rubber. The lamp is light in weight, compact and beautifully finished in black (baked enamel). Two bulbs, necessary connections, bracket to fit all cars and switch are furnished.

Artificial Leather The Modern Upholstering Material for Automobiles

Substitute For Hides of Beasts, Now Being Used in Enormous Quantities Is Largely A Product of the Cotton Fields and Chemical Laboratory

Illustrations by Courtesy of Du Pont Fabrikoid Co.

WHILE "necessity is the mother of invention," it has often happened in the history of the world's progress that some of the greatest discoveries and inventions came before the demand called for their creation. This has been true with many of the materials used in trade and commerce that were formerly secured solely from natural sources, but which are now produced almost entirely by synthetical or artificial means. In no instance is this so strikingly indicative of man's wonderful genius in combining the elements to obtain the same results as nature's laboratories, as is the case of artificial leather.

Has Superior Qualities.

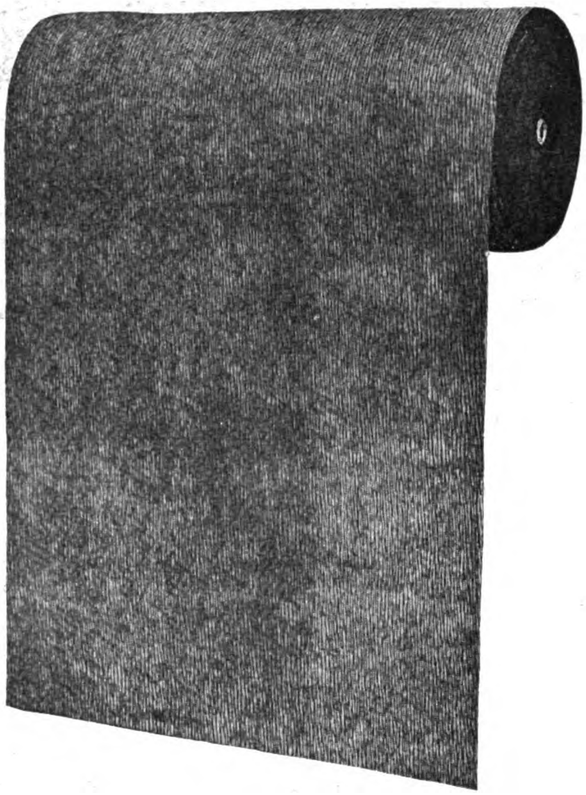
While it must be admitted that the synthetic product will differ in a number of properties from the tanned hide of the beast, yet in the majority of ways in which leather is employed, and particularly upholstering, the artificial substitute has the advantage in most every respect.

Millions of motorists are today riding about in cars upholstered with artificial leather, a fact of which some are conscious and others have never given the matter a thought, yet neither class are acquainted with the interesting facts concerning its manufacture or the economic conditions that brought this substitute for the hide into such extensive use.

At this point it is interesting to divert from the subject temporarily to discuss briefly the ancient, but intensely interesting history of upholstering. Coeval almost with the first civilization of man, over 3000 years ago, an Egyptian artisan employed the skin of a bullock as a seat for a chair. Elaborations and improvements on this idea were many in the following centuries. It was soon learned that the full thickness of the hide made it stiff, unwieldy and uncomfortable for upholstery, and that in the outer portion of the hide there were incorporated all the qualities making it valuable, such as grain, beauty, strength, resiliency and durability. From that time on up to the opening of the present century upholsterers always skived off the fleshy, pulpy inner portion of the hides and utilized only the upper half.

Automobile Created Demand.

With the growing demand for leather [illegible] in all the arts and trades, leather manufacturers came to realize the great loss resulting from the method of handling hides, and when a still more imperative demand for economical handling of hides developed with the advent of the automobile, with its demand for 75 to 100 square feet of leather for the upholstery of each car, necessity again came to the rescue as the mother of invention and resulted in the development of an ingenious machine with which the manufacturers could split a hide into as many layers as desired.



A Roll of the Leather Substitute as It Goes to Market.

The hide was no longer split in two sections, an upper and lower layer, and the latter discarded, but the first or outer thickness of good grain leather was removed and the remainder split into three layers, each weaker up to the last. A coat of dressing was employed to give the surfaces of these splits the appearance of a first or outer layer with its grain marks and the leather was frequently marketed as a first grade.

Car manufacturers, who were constantly trying to lower the price of their products, experimented with these splits of leather, but to their sorrow, finding that they would not stand up in service for car upholstery, as they cracked, tore, disintegrated rapidly and soon lost their finish.

Manufacturers turned to the leather substitute, and that it met all requirements needs no stronger confirmation than is found in the enormous industry for producing it, that has been created by the demand. The leather substitute, by which is generally meant a cotton base fabric, coated with a pyroxlin solution, colored and embossed with the natural grain, has not come into use because of conditions created by the war, but has been in use for 40 years and was first manufactured, though not on a commercial scale, over 60 years ago. The leather substitute product of today, however, is as far superior to that of 10 years ago as it is to one of the secondary splits of real leather. It has the appearance and soft, glovey feel that is found in the best grades of leather; has greater tensile strength and durability than the split grades of leather and retains its attractive appearance indefinitely. Because of the porosity of leather it has numerous disadvantages as compared with artificial leather, which is absolutely sanitary, water, grease, dirt, stain and vermin proof. It can be cleansed thoroughly with soap and water.

Through these qualities it appeals to the up-to-date manufacturer and the public as superior to leather in an astonishingly diversified number of uses. Its value has already been demonstrated for use in furniture and automobile upholstery, automobile and carriage tops, bags and suit cases, book binding, trunks, camera cases, manicure, jewelry and instrument cases, hand bags, harness, clothing, gloves, puttees, counter mats, gun cases, pillows, hats, toys, belts, storm aprons, baseballs, leggings, shoes, military vests, car curtains, vestibule curtains and novelties of every description.

Largely a Cotton Product.

It is difficult for the average person to realize that the leather substitute is largely a cotton product, both as to base and surfacing, as there are no two commodities that seem to have so little in common as regards qualities and uses as cotton and leather. The comparison, however, is a little far fetched, as while

The Hum of Thousands of Spindles Is Heard Where the Fluffy Staple Is Spun Into Thread for Making the Base Fabric.

the commercial product, leather, is a real leather, the leather substitute is only partially cotton and that part is cotton cloth, while the other part, which is derived from cotton, is made from the staple after it has been dissolved into its elements.

Leaving the southern gins where the boll is bereft of its seeds it goes to the mills, where it is carded, spun and woven into an extra grade of strong cloth, both the warp and woof being made of selected threads, as the finished fabric must be of unusual strength to withstand the strains and wear.

The dyer handles the cloth in the next step of production, placing it in huge vats, where it is impregnated thoroughly with the dyes and is shrunk so that it will neither stretch or sag. It is then passed over heated cylinders in the drying process, after which it is ready for its magic coat of solution that gives it the quality and appearance of leather. The expression "magic solution" is appropriately used in this case, as the secret of this remarkable product is tied up in the concoction and ingredients of this mixture, in the preparation of which no expense or pains are spared, for on it the success of the surface and consequently the value of the finished product depends.

As previously stated this solution has a base of cotton, the staple being thoroughly cleansed of all impurities, after which it is nitrated by being soaked in mixed acids. Following this process the cotton is carefully washed in a number of washings and thoroughly dried, when it is dissolved in chemicals of different kinds, the solution being colored to reproduce the desired tint or color.

In the handling of this solution is also the secret of obtaining realistic effects in the finished product, and varying qualities are secured in its application to the fabric, which is coated with varying amounts of the solution by being passed through long machines that lay on films of even thickness and uniform quality. There are a large number of uses for leather substitutes which require an exceedingly thin and pliable fabric, for which product the use of light cloth and a thin coating is necessary. Other demands require a thick and exceedingly strong product, the manufacture of which requires the use of a heavy cloth and thick coating.

Successive coats of the pyroxylin solution are applied until a tough wear resistant surface is built up on the cloth, when the surface is ready for the graining that gives it the appearance of an exact replica of natural leather. The embossing process is employed in graining the surface and is the last in the series of processes in fabricating the leather substitute before it is placed on the market. It is also the most interesting, if not the most difficult of all, as the natural markings of the genuine hides are transferred to steel plates and rollers, which reproduce them in the most minute detail upon the pyroxylin surface of the product. The plates and rollers are heated with the result that the grain is embossed so that its permanence is as lasting as the material itself.

Practically any effect can be obtained in this finish. The appearance of the most elaborate Moorish leather, where two colors are essential, may be duplicated, or the characteristic markings of pig skin, alligator or other expensive natural leathers. Different degrees of lustre can also be obtained upon the finish to meet requirements of any demand and before passing along to the shipping room the product undergoes a series of exacting inspections and is rolled up in rolls of different lengths and widths.

The cost of machine buff upholstery leather, with which most of the better cars using leather are upholstered, is now about 32 cents per square foot and there is at least one foot in every four wasted in trimming the irregular edges and eliminating weak and imperfect spots. The best grades of leather substitutes cost the manufacturer about 14 cents per square foot and there is practically no waste because the material comes in long rolls of absolutely uniform width and quality, giving practically 100 per cent. upholstery efficiency.

Another great saving effected in the use of the leather substitute for upholstering is in labor costs. An expert leather cutter, in a day of eight hours, can only cut the leather necessary to upholster 30 medium sized roadsters, while a man and a boy working eight hours with a single electric cutting machine can cut enough artificial leather in eight hours to upholster 384 cars.

Waste in Trimming Leather.

Work at this rate is turned out in one of the foremost trimming shops in the country. It took the man and his helper one hour and 40 minutes to lay out 40 thicknesses of artificial leather upon the cutting table, to mark out on the same two sets of each of the 20 pieces required for each car, and to cut out the 80 sets of pieces and clear the table for the next lot. If called upon for a greater output this cutter, working on the leather substitute, said he could lay out and cut 50 thicknesses at a time and so increase his output by 25 per cent. if necessary.

A greater saving even is effected in cutting the thinner grades of artificial leather, which are used for door linings and other parts of the trimmings, the cutter laying out and cutting 100 thicknesses. One cutter working at the Ford plant where all the material for both tops and upholstery was cut up by 14 men with 14 electric cutting machines working eight hours a day, stated that this force of cutters were turning out more work than 150 men could turn out working on leather.

Still further economies are to be obtained with the substitute for leather, of which the most important is that effected in sewing the various pieces of upholstery toegther. The material being of uniform width, the patterns are laid out so as to require a minimum number of pieces. The number of pieces in the pattern is always larger when leather is used, because of the necessity of using as many small pieces as possible to save them from being discarded as scraps. It may not be generally known that the popular style of French pleated upholstery is exceedingly wasteful of leather, because it requires much larger sections then the old diamond tufted upholstery, where each diamond could use a small piece.

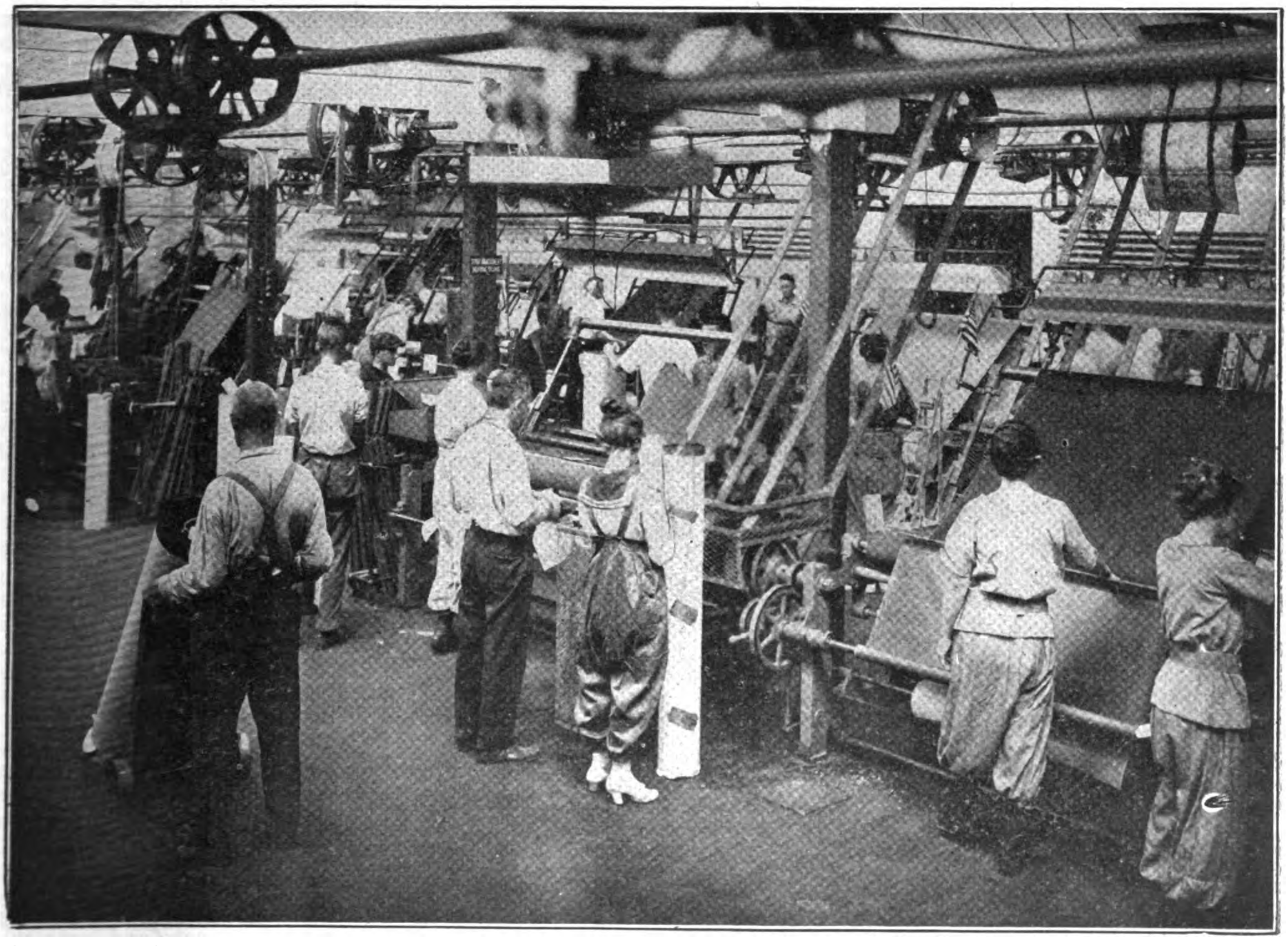
In the final operation of putting the upholstery on the car, comes another saving of almost equal importance as those already enumerated. Workmen state that it is practical to use four-ounce tacks when using leather substitutes against six or eight-ounce tacks when upholstering with leather, and that it is not necessary to drive as many tacks with the former. The leather being weak in spots it is necessary to drive larger tacks and more of them to be sure that it would not pull away when stuffed and stretched. Even with this precaution it frequently does tear out in weak spots and requires considerable extra work to repair.

Qualities and values of leather vary so greatly that there can be no fair or absolute comparison made with the artificial product, but the latter are similar in the essential qualities, which are tensile strength and durability. In fact, it has been proved that the best upholstery leather substitutes have twice the tensile strength of the ordinary split leather and will wear much longer without cracking, peeling or wearing through the coating and becoming shabby. For this reason alone practically all the popular priced manufacturers adopted leather substitutes in place of the split leather, as they give service at least the equal of that obtained from the average grade of machine buff leather. No claim is made, however, that the substitute for upholstering is equal to genuine hand buff leather, such as is employed in the higher priced automobiles. On the other hand, as previously mentioned, the artificial leather has numerous service qualities, as well as points of advantage that even the first grade of leather cannot offer. The owner of a car upholstered and finished in a first grade artificial leather has no worries over keeping the material in good condition, as it requires no other care than an occasional cleaning with soap and water and if, after long service, the coating wears through and shows the fabric base at any place, this worn spot can be renovated by an application of any of the leather renovators of the pyroxylin type that are on the market.

Used on 75 Per Cent. of Cars.

As the automobile industry uses more upholstering materials than any other in the world, it is but natural that it should be the greatest consumer of the leather substitutes, although carriage makers also consume enormous quantities. In these two lines alone over 25,000,000 yards of leather substitutes are used annually, including not only imitation leather of the pyroxylin type, but also the various rubber coated materials used chiefly in carriages and low priced automobiles. In the upholstering of automobiles another 10,000,000 yards of leather substitutes are used annually. Over 75 per cent. of the popular priced cars manufactured in this country last year were upholstered in these leather substitutes of one kind or another.

There are other reasons, however, besides those of quality and first cost, that have been instrumental in making the leather substitute so popular for upholstery and trimming purposes.



Girl Dressed in Bloomers Carefully Scan Every Inch of the Finished Product to Detect Any Flaws or Imperfections.

Bay State Dealer Has New Idea in Garage

Taunton Velie Agent Transforms Old Armory Into Modern and Attractive Establishment.

L. B. Goward, agent for Velie cars and International motor trucks in the territory centering at Taunton, Mass., recently opened one of the most novel, modern and spacious garages in New England in that city, and while it was established in an old building, it is more attractive as to both exterior and interior appearance than if a new structure had been erected for the purpose, while nothing has been sacrificed from an efficiency viewpoint.

ARMORY GARAGE

Old City Armory, Taunton, Which L. B. Goward Has Transformed Into Model Garage with Many Novel Features.

The idea that a garage and repair shop must necessarily have an atmosphere of darkness and dirt and reek with the odor of gasoline and oils was disposed of by Mr. Goward when he purchased the old Taunton City Armory to use as a business headquarters for his agency, garage, repair and supply business. The front of this building, two stories in height, with a dormer tower on the roof and large main entrance in the center directly beneath, and opening onto a main thoroughfare, needed no treatment to improve its appearance. It was one of the most attractive building exteriors in the city, being of brick with stone trimmings and archway over the entrance and the whole beautified by a dense growth of green ivy extending from the underpinning to the eaves. Nothing has been detracted from this striking effect by the erection of well lettered and not too large sign, reading, "Armory Garage," which is the only exterior indication that the structure has been diverted to business purposes.

It was exceptionally well adapted for the purposes of a garage and car agency, being 141 feet in length and 60 feet in width, the main floor, which is used for garage and repair purposes, being 100 feet long and 60 feet wide clear of posts or other obstructions to interfere with the moving of cars about. Spacious head room, there being an unbroken area of 29 feet from the floor to the peak of the roof, makes it airy and agreeable. The two-story front provides two offices on the first floor and rooms on the second floor, the latter being equipped as a ladies' waiting room.

The treatment of the interior incorporates Mr. Goward's ideas of the proper garage atmosphere, the walls being painted in glossy white enamel and are conspicuously free from signs or other disfiguring objects, the only notices appearing in the structure are small, neat, gold lettered signs, directing the customers to either the office, ladies' or men's room.

In keeping with his policy of affording customers an agreeable and attractive place in which to do business, he also insists on satisfactory service, keeping the garage open day and night with repair men and attendants always on duty. He also carries a full line of supplies on hand, including tires, tubes, lubricants and accessories, so that customers can receive every accommodation and without delay.

MAY REFUSE STEEL FOR USE IN LICENSE PLATES.

It is reported that the War Industries Board will not permit the manufacturers of license number plates to use steel for next year's production. About 500 tons was consumed in this business last year.

N.A.C.C. Active In Rural Express Campaign

Motor Truck Committee of the Organization Is Appointing Representatives to Discover New Routes.

District representatives are being appointed in all the principal centers by the National Motor Truck Committee of the National Automobile Chamber of Commerce to assist in the discovery of routes over which rural motor express lines can be operated successfully and to help in getting such services started.

The committee has issued a series of pamphlets giving in detail a list of services to be rendered by such express lines, the scale of charges, a sample cost sheet, suggestions for the preliminary survey of routes and canvass of prospective customers, operating plans and general suggestions. This printed matter is available to anyone interested and will be sent upon request addressed to the N. A. C. C., 7 East 42nd street, New York.

The committee has undertaken to interest the 115 motor vehicle manufacturing members of the chamber and between 30,000 and 40,000 dealers in this patriotic movement. In this work it is aiding the Highways Transport Committee of the Council of National Defense, as a result of whose investigations and efforts rural motor express lines will be in extensive operation before the summer ends.

The object is to provide a regular service, reliable in operation and reasonable in cost, for the farmer, who is affected by embargoes or inadequate railroad service, or is so far from a railroad that hauling is unprofitable.

Farmers now served by motor express lines regard them as the greatest labor saver they have ever known and say that without the trucks they would have to stop shipping milk or garden truck, that their production has largely increased and that their produce is delivered quicker and in better condition than ever before. Many who formerly wasted material because it did not pay them to drive to town now make regular shipments.

Truck lines usually can be operated most successfully between two towns or a city and town 20 to 30 miles apart, carrying farmers' produce to the towns and bringing back merchandise to the farmers, the whole operation being carried through in a day.

Rural expressing has reached an interesting development in Maryland, where 20 lines carrying supplies into Baltimore and Washington have a daily capacity of 115,690 ton-miles and can haul more than 100 tons a day into those markets and carry an equal amount of merchandise back to the farmers and country merchants.

Developments Affect Passenger Car Production

Conservation of Fuel and Steel Calls For Further Retrenchment In the Motor Car Industry—New Automobile Tax Measure May Be Included In Revenue Bill

Practically the first step taken in the program for curtailment of fuel consumption to meet the anticipated shortage of coal next winter directly affects the manufacture of passenger automobiles, the announcement being made that this industry, beginning Aug. 1, would be permitted to consume but 25 per cent. of the quantity of coal used in 1917-18. This order was definite and was not included in a list of so-called non-essentials, as it is understood that the Fuel Administration will hereafter issue individual orders applying to a particular industry.

Fuel Administrator Garfield has received a report that 100,000,000 tons more of coal than was produced this year will be needed to meet the demands of the coming year, which is based upon an estimate of 80,000,000 tons for actual demand in sight, with an additional 20,000,000 tons to allow for progressive war preparations. The administrator says that increased production of coal cannot meet this demand and a saving of 60,000,000 tons of coal only can save the country from disaster.

"Necessities of war must be supplied," the administrator states, "and the coal deficit must inevitably come out of the fuel for non-war industries."

There are other activities at Washington indicating that the automobile is running the gauntlet of legislators and administrators, who are fishing around for something upon which to place the burden of the taxation that must be increased to defray war expenses.

Congressman Cox of Indiana introduced a measure proposing a tax on automobiles on a sliding scale, with the original selling price as a basis, beginning with a minimum of $10. This bill, which it is figured would raise a total of $250,000,000. was referred to the Ways and Means Committee, which is framing the new war revenue program for raising $8,000,000 by taxation.

The Cox bill provides for a $5 tax on motorcycles and a tax of $10 on automobiles, the original listed selling price of which in the United States is not over $500. On cars originally listed at over $500 and not more than $750, the tax would be $20; over $750 and less than $1000 the tax would be $30. An additional tax of $20 would be imposed for each further increase of $500 or fractional part thereof up to and including the original list of $3000; and $30 additional for each further increase of $500 or fractional part thereof of the original listed price.

The initial tax would be assessed upon passage of the law and thereafter annually upon the first of July and new cars would be taxed at the time of purchase. On old cars a concession is made of 10 per cent. a year up to 50 per cent.

At one of the recent hearings of the new revenue bill before the Ways and Means Committee, Prof. Oliver M. W. Sprague, professor of banking at Harvard University, recommended a tax of $10 to $50 on each chauffeur and 25 cents a gallon on gasoline. The chauffeur tax, he said, would cause the rich to give us this luxury and drive a number of excellent mechanics into the army.

"There is little evidence of economy in running cars for mere purposes of recreation," said Prof. Sprague. "It is difficult to convince the ordinary man that he should skimp and save to buy War Stamps and Liberty Bonds when he sees automobiles whirling around the country in swarms. I would not tax the automobile, but would impose a tax of at least 25 cents a gallon on gasoline used for pleasure purposes, and would put a tax likewise on chauffeurs. England taxed gasoline sixpence (12 cents) a gallon.

Following reports in Washington that General Pershing had requested 2,000,000 tons of projectiles and shells in excess of estimates, Edwin B. Parker, chairman of the priorities division of the War Industries Board, stated that the demand had exceeded the present supply. This announcement, indicating the possible withdrawal of steel from every other use in this country except for war, was made just prior to a conference with jobbers of steel hardware and machinery men.

Judge Parker made public a communication which had previously been placed before the conference, bearing on the situation, which in part was as follows:

"Because of the abnormal demand for iron and for iron and steel products created by the war it has become evident that the demand far exceeds not only the present supply, but it is feared the supply that can be made available during the war.

"That the direct and indirect war requirements must have precedence admits of no argument. War bulletin No. 35, issued by the Chamber of Commerce of the United States, outlines in general terms the priority policies affecting industry adopted by the War Industries Board.

"The problem involving the extent to which if at all the government should assist jobbers in maintaining stocks from which direct and indirect war requirements and requirements of exceptional and national importance can be drawn is a perplexing one, coupled with which is the further problem as to the methods to be adopted, the procedure to be followed, to prevent hoarding on the part of the jobbers and to insure that distribution through them will be restricted to essential uses.

"While the War Industries Board has given careful consideration to these problems, it is anxious to have the benefit of the views and suggestions of representatives of the jobbers with particular reference to the service, if any, they can render the government in providing the machinery for a properly restricted distribution of iron and steel products."

BOOKLET ON HARRISON PRODUCTS.

The Harrison Works, paint and chemical manufacturers, owned and controlled by E. I. Du Pont de Nemours & Co. of Wilmington, Del., have just issued six new and attractive booklets on the various products of their manufacture.

An attractive little folder sets forth a list of the heavier chemicals, as alums, acids and a miscellaneous variety under the name of "Harrison Blue Ribbon Chemicals." In connection with a classification of the different materials it also lists the nature of the trades or industries in which they are used, and in many cases states how they are used.

The subject of "Harrison Oil Stains" is treated in a two-page folder, the cover of which represents the panel of a door lithographed with the natural color and grain of the wood. What appears to be a departure from the ordinary type of stain folder is the way the samples of oil stains are displayed in the folder. A very thin veneer of real wood is treated with the stain, which brings out the beauty of the wood much more naturally than can be done by the lithographer's art. On the back cover of this pamphlet are also listed the other Harrison home improvement materials.

One of the most appropriate three-page folders, especially at this time when the last year cars are being run to their limit, is the one by the name of "Harrison Automobile and Carriage Paint," containing representative colors in car painting. The front cover pictures a newly painted automobile of grayish blue body and vermilion wheels. The first and third inside pages illustrate the colors which are recognized as standard by automobile painters. Instructions, plainly written, accompany the folder.

Copies of these charming little examples of the printer's art are ready for distribution to all persons requesting them. Address the home office at Wilmington, Del.

The number of licenses already issued in Michigan this year is almost as large as the total for 1917. Last year 206,000 cars were licensed, and the 1918 permits are already at the 206,000 mark.

Activities of Prominent Men of the Industry

Resignations, Promotions and Other News of the Personnel of Motor Vehicle Manufacturing and Merchandising Companies and Allied Businesses

C. T. Chenevert has been commissioned a senior lieutenant in the Bureau of Aviation Operation, to supervise navy trucks in France. He was formerly vice president of the Denby Motor Truck Co., Detroit, Mich.

C. Tom Barbour has been appointed purchasing agent for the Bearings Service Co., Detroit, succeeding K. H. MacQueen, who has joined the Army.

M. F. Luckenbill has been appointed sales manager of the Master truck department of the Larson Oldsmobile Co., Philadelphia. He was formerly in the truck department of the Packard Motor Car Co.

H. M. Prewett has become associated as district manager of the Willard Storage Battery Co., with headquarters in Detroit. He succeeds S. S. Jenkins, who has been made district manager of manufacturer's sales.

Joseph H. McDuffy has resigned as manager of the Chicago branch of the Willys-Overland Co. He will be succeeded by A. C. Barber, district representative of the company in the Chicago territory.

Capt. W. S. Gilbreath has been appointed Michigan representative of the Contest Board of the American Automobile Association, succeeding W. D. Edenburn, who has directed Michigan races sanctioned by the A. A. A. since 1915. He is also manager of the Detroit Automobile Club.

Max Hagelstine is now factory manager of the Detroit Battery Co. and the Disco Electric Manufacturing Co., Detroit, Mich. For the past 10 years he has been associated with the Studebaker Corporation in the various capacities of plant manager, experimental engineer, assistant chief engineer and head of the domestic and foreign department. Prior to that he was in charge of the experimental work for the Peerless Motor Car Co., the Garford Manufacturing Co. and the Rainier Motor Car Co.

Charles Clifton, President Pierce-Arrow Motor Car Corp., Re-Elected Head of N. A. C. C.

C. T. Chenevert, Lieutenant in Bureau of Aviation Operation.

C. M. Waltman is now assistant to the vice president of the Hupp Motor Car Corporation, Detroit, Mich. He was formerly general superintendent of the Weidely Motors Co.

N. E. Wahlberg, who was formerly chief engineer of the Nash Motors Co., Kenosha, Wis., and previous to that engineer of the Oakland Motor Car Co., Pontiac, Mich., has been appointed a major in the Quartermaster's Corps of the United States Army.

Colonel Joseph D. Potter has been elected president of the American Motor Truck Co., Newark, O. He was formerly associated with the Kilbourn & Jacobs Manufacturing Co., Columbus.

A. D. Kelley, assistant general manager of the Signal Motor Truck Co., Detroit, and formerly connected with the Chalmers Motor Co. and Dodge Brothers, has resigned to do government work.

Richard Taylor has been appointed sales manager of the Mayo Radiator Division of the the Marlin-Rockwell Corporation, New Haven, Conn.

S. S. Jenkins has been promoted to the post of district manager of manufacturers' sales, with headquarters in the Willard factory branch at Detroit. H. M. Prewett is district manager for trade sales.

H. E. Vosseler is now in charge of the newly opened branch in Chicago of the Globe Rubber Tire Manufacturing Co. He is one of the veterans of the tire industry.

W. F. Blaha has resigned as advertising manager for Master Trucks, Inc., Chicago, Ill.

R. B. Cole, for one year sales manager of the Hudson Motor Car Co. of New York, has been elected vice president.

John Plummer is now in Washington, where he will devote his entire time to government affairs. He is one of the oldest and best known of the tradesmen on New York's automobile row.

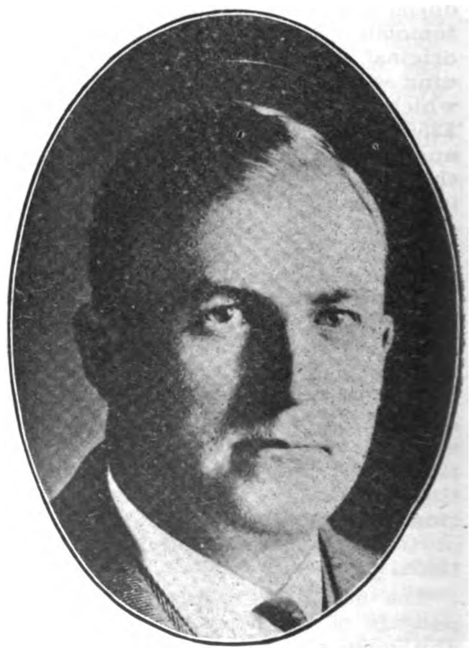
Herbert Everett has resigned from Merritt-Johnson, Inc., New York City. He has been long associated with this company and is well known in the advertising field.

Charles B. Wilson is now in charge of production for the Curtiss Airplane and Motor Co. at Buffalo. He is head of the Wilson Foundry and Machine Co. of Pontiac, Mich., one of the subsidiaries. Mr. Wilson is considered one of the best production men in the country. In his new capacity he will act with the title of assistant general manager.

H. S. Mader has been appointed superintendent of the service department of Burnett & Sherman, Inc., 1019 Commonwealth avenue, Boston, Mass. He is to have charge of all the repair work and testing of Ford cars.

C. L. Atterbury has been appointed manager of the Auto Supply Co. in Hutchinson, Kan. He has been connected with the Auto Supply Co. of Kansas City, Mo., for several years.

Rufus Price, formerly proprietor of the Ohio Vulcanizing Co., has been made manager of the E. P. Whiteside Co., dealer in Lee tires, in Youngstown, O.



Max Hagelstine, Factory Manager of Detroit Battery Co. and Disco Electric Manufacturing Co.

W. E. Hutchison is now manager of purchases of the Denby Motor Truck Co., Detroit, succeeding E. F. Oberlin, who has gone into government service. He was formerly purchasing agent for the United States Ball Bearing Co., Chicago.

F. X. Devlin has been appointed purchasing agent of the Standard Motor Truck Co., Detroit, Mich. He was formerly purchasing agent of the Federal Motor Truck Co. and later purchasing agent and stockholder of the Elgin Motor Car Co., Chicago, Ill.

J. A. Stairs is now superintendent of ordnance production at the Harroun Motors Corporation, Wayne, Mich. He was formerly vice president of the Eastern Steel Co., New Glasgow, N. S., and during the last three years has been specializing in ordnance production.

C. B. Gaunt is back with the Paige Motor Car Co. He left in January to associate himself with another company in charge of the order department.

Walter J. Moore has been transferred to Washington to look after the United States Tire Company's business with the government. He has been for the past two years office manager of the company in St. Louis.

L. S. James has been appointed to general sales manager of the Harward Manufacturing Co., makers of Harward piston rings. He has been connected with the automobile business in St. Louis since its beginning.

Oscar Norris has left St. Louis for France to take up Y. M. C. A. war work. He was formerly a member of the staff of the Vesper-Buick Auto Co., St. Louis, Mo.

H. G. MacEachen is now in the army. He was Pacific coast advertising representative of the Firestone Tire and Rubber Co., Akron.

Robert M. Gregory, formerly with the Oakland Motor Car Co., Pontiac, Mich.; the Hupp Motor Car Co. and the Packard Motor Car Co., Detroit, Mich., has been appointed director of purchases for the Lane Motor Truck Co., Kalamazoo, Mich.

George H. Hunt, who was former manager of the Detroit office of the Stromberg Motor Devices Co., Chicago, has resigned to become Detroit representative of the Edward G. Budd Manufacturing Co., Philadelphia, body manufacturer.

H. B. Knutson was elected president of the Duluth Automobile Dealers' Association. The other officers elected are as follows: Russel W. Sherman, vice president; Mr. Foster, treasurer; Phil Holgate, secretary.

Arthur Duray will enter the derby, scheduled for the Chicago Speedway June 22. He is in the French army and an old time racing driver, who finished second in the 1914 Indianapolis contest. He brought no car with him from Europe, but will handle a Frontenac car which has just been purchased by Harry Harkness.

Myron O. Lawson has resigned as assistant advertising manager of the J. I. Case T. M. Co., Racine, and will enter government service. He will probably enlist either in the United States Navy or the Marines.

Charles S. Pike, Sales Manager, Truck Division, Paige-Detroit Motor Car Co.

Charles S. Pike is sales manager of the new truck division of the Paige-Detroit Motor Car Co. For two years he has been with the company and took charge of the sales promotion of passenger cars when a department of this work was organized.

F. W. Simcoe will be manager of the Philadelphia Motor Parts Co. He was general manager of the Essex Storage Battery and Supply Co., Newark, N. J.

Julian S. Friede, for the last two years in the engineering department of the Paige-Detroit Motor Car Co., has enlisted in the Canadian Royal Flying Corps. He will leave for Toronto.

Champlin Robinson, head of the William C. Robinson & Sons Co. and the Robinson Oil Corporation, has been appointed director of Oil Conservation for the United States. He will work with the Fuel Administration.

Russ Baldwin has resigned as head of the speedometer department of the Champion Ignition Co. His new connection will be announced later.

Chester I. Campbell May Head Allied War Expositions.

C. A. Erickson has been appointed manager of the Standard Radiator Co., Springville, N. Y. He was formerly chief engineer of the Scripps-Booth Corporation, Detroit.

J. D. Wilson is now chief engineer of the carriage division of the Packard Motor Car Co., Detroit. Mr. Wilson was formerly assistant carriage chassis engineer and has taken the place of G. H. Brodie, who has resigned. Mr. Brodie was transferred to the aircraft engineering staff.

T. P. Chase, formerly chief engineer of the King Motor Car Co., Detroit, has been made chief engineer of the Young High Velocity Carburetor Co., Detroit.

Norman G. Wilson has been promoted to the position of manager of the branch of the Stanley Motor Carriage Co., Philadelphia, Pa.

Leslie L. Newton, who has been secretary of the Luther Grinder Manufacturing Co., has resigned to become secretary and treasurer and general manager of the Stegeman Motor Car Co. Mr. Newton will continue to act as director of the Luther company. His successor as secretary is Frank Hyland.

William H. Taylor succeeds Joseph H. McDuffee as president of the Overland Motor Co. of Chicago. For several years he was manager of the Kansas Moline Plow Co. There will be no change in the policy of the company or in territorial jurisdiction.

Charles S. Shuman has resigned as manager of the automobile department of the Standard Metal Manufacturing Co. of Newark, N. J., to become sales manager of the Vacuum Muffler Corporation, 154 Nassau street, New York City. For many years he was connected with the Klaxon Horn organization.

J. Henry Smith, manager of sales and motor parts department of the Rich Tool Co., will handle all sales from Chicago, Ill.

H. W. Richards of the Superior Motor Car Co. has been promoted to sales manager.

L. Q. Slocumb has resigned as salesman for the Rottersman Automobile and Truck Co. and has opened a law office in St. Louis.

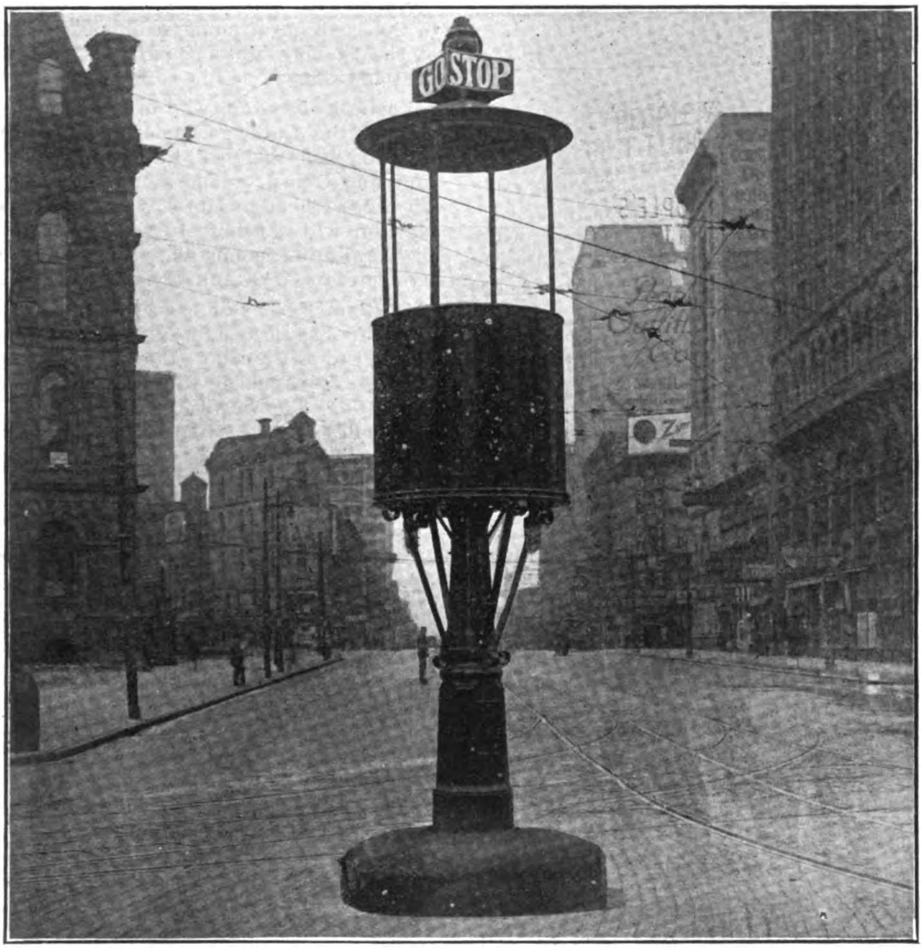
E. E. Peake has been made executive secretary of the National Automobile Dealers' Association and will take charge of the membership campaign. He is also secretary of the Kansas City Motor Car Dealers' Association and president of the National Association of Automobile Show Managers. Mr. Peake is widely known to motor car dealers and has been active in the work of the N. A. D. A.

Chester I. Campbell has been asked by the government, through the committee on Public Information, to take charge of the Allied War Expositions. The government is planning a series of exhibitions of war material captured by the various forces. Mr. Campbell is best known to automobile trade circles through his handling of the Boston Automobile Shows and other expositions in the Mechanics' building, Boston.

Detroit Has New Idea In Traffic Control

Officer Stands in Elevated Tower and Directs Flow of Vehicles at Junction of Main Avenues.

At Detroit's business traffic center, the junction of Woodward and Michigan avenues, which is also the terminus of Monroe street and Cadillac square, about 20,000 vehicles crossed in 10 hours according to a tally kept by the city police, and it is claimed that no other city in the world surpasses this record for any one intersection of streets.



The "Crow's Nest Traffic Signal Tower" at the Junction of Detroit's Busiest Thoroughfares, Woodward and Michigan Avenues.

This congestion of traffic at this point has been the subject of much study on the part of the Detroit authorities, who by the way, it might be stated, have inaugurated numerous methods of handling traffic problems. Another "made in Detroit" idea has recently been put into effect at this point which has a number of original features that will aid greatly in the control of the traffic. The traffic policeman stationed at this square now takes his stand in a tower elevated above the street, from which point of vantage he directs the stream of traffic which flows in and out of the square and signals to eight other officers who are stationed at the various corners to assist in the work.

The base of the signal tower, which is called a "crow's nest traffic signal," is of concrete with a steel superstructure, which supports a signal box six feet above the ground. On the top of the roof or canopy is a conventional "stop-and-go" signal, which is operated by the attendant.

NEW ERA PURCHASES THE PARRADEE SPRING AUTO BUMPER.

The New Era Spring and Specialty Co., Grand Rapids, Mich., has purchased the plans, manufacturing rights, machinery and equipment of the Parradee spring auto bumper. Edward Parradee, the inventor, will remain and superintend the manufacture of the bumpers.

"THE DRAGON" NEW HOUSE ORGAN OF FAFNIR BEARING CO.

"The Dragon" is the title of a very modest magazine that is to be published bi-monthly in the interest of ball bearings by the Fafnir Bearing Co., New Britain, Conn. It is the purpose of the magazine, as the editor explains, to supplement in some measure the company's constant efforts to cooperate with the customers and to establish more intimate business relations with those who are prospective consumers of Fafnir ball bearings. The magazine will be mailed to anyone interested in the subject of ball bearings upon application to the company.

DETROIT SECTION S. A. E. ELECTS NEW OFFICERS.

The Detroit section of the Society of Automotive Engineers held an election meeting on May 24, when the following officers were appointed: Chairman, J. Edward Schipper; vice chairman, A. C. Hamilton, chief engineer of the Oakland Motor Car Co.; treasurer, Don G. Hastings, chief engineer of the Holley Carburetor Co.; secretary, C. F. Van Sicklen, secretary of the Van Sicklen Speedometer Co.; member of national nominating committee, R. E. Wells, engineer of the Hyatt Roller Bearing Co.

PILOT MOTOR CAR HAS BEEN ADVANCED IN PRICE $100.

The Pilot Motor Car Co., Richmond, Ind., has advanced the price of its four and five-passenger touring cars $100 to $1395.

Ford Announces His Candidacy For Senator

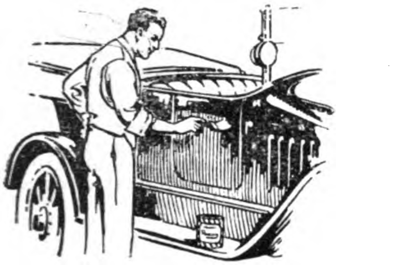
Henry Ford announced in Washington, June 13, that after having seen President Wilson he had decided to be a candidate for United States senator from Michigan if the nomination should be offered him. In this statement he did not specify which nomination would be accepted. However, it is understood among political leaders that the President anticipates that the Republicans of the automobile state will make Mr. Ford their nominee and join forces with the Democrats to make the nomination equivalent to an unanimous election. Michigan Democrats meeting at Lansing, June 12, indorsed Mr. Ford as their choice for the nomination for the Senate.

Following is Mr. Ford's statement:

"At President Wilson's request I have decided to accept the nomination for senator from Michigan if tendered to me. Realizing that there are exceptional opportunities for service to our people during the present and coming readjustment, I am ready and willing to do everything I possibly can to assist our President in this great work. Every man must expect to make great future sacrifices and be prepared to serve wherever the greatest need exists."

Some of the Senate Republicans seemed disturbed over the Ford candidacy. A leading Republican said: "Mr. Ford is not a Republican, and if elected to this body as a Republican would probably vote with the Democrats by arrangement oftener than he would vote with the Republicans by choice. He has never, to my knowledge, voted the Republican ticket."

ACCESSORIES
AND
EQUIPMENT



Panvar Car Refinisher.

The Panvar Car Refinisher is a lasting liquid luster that can be handled with excellent results by the amateur. It dries over night and is quickly applied, is self-leveling (which means that it will dry out evenly and not show brush marks), dries with a hard, glossy finish, and being transparent can be used on any colored car, seats, tops and plated parts. Luster will last as long as varnish, and the makers claim will not crack, creep, peel or turn white from the effects of water or steam. Sells for $1.50 a quart. A quart will do a car.

The Panvar Co., 708 Bulletin Bldg., Philadelphia, Pa. Write for trade prices.

The A. C. Carbon Proof Spark Plug is a new type of this famous make of plugs and a sectional view is reproduced herewith. This plug was designed primarily to overcome the carbonizing trouble experienced in a certain tractor engine using kerosene as a fuel. The results were so satisfactory that it was decided to put the plug on the market for use in automobile engines. It is made in sizes for the Ford, Overland and Studebaker cars, and in tests on Ford cars covering a period of one year the manufacturers claim that no instance has been found where a plug was removed on account of carbonizing. The porcelain is provided with a number of ribs, having saw tooth edges which attain a sufficiently high degree of heat to burn away the carbon, thereby keeping the edges free from deposits and eliminating any chances of possible short circuit.

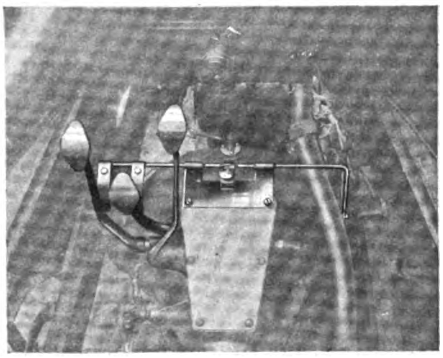
Manufactured by the Champion Ignition Co., Flint, Mich. Write for prices.

The Badger "Two-Wheel Drive" Differential always applies the power on the wheel offering the greatest resistance. This means that the car is held steady and true to the line of drive. On a slippery surface, or when traveling in sand or mud, the wheels take the full power of the engine, thereby eliminating waste of power and wear on the tires through the spinning of one wheel. The car holds the road no matter how sharply crowned, muddy or slippery. The makers claim it is easily installed by simply taking out the three pinion gears and inserting the two Badger gears, using the same spider. The illustration tells the whole story. It is claimed that any Ford owner can do the work with his regular set of tools, or the garage can do it in from two to three hours. An attractive offer is made distributors and dealers to handle the Badger Differential.

Manufactured by the Lewis Differential Co., Milwaukee, Wis. Write for prices and literature.

The Speederator combines a foot accelerator with an automatic controlled advance and retard for speed changing on the Ford car. It eliminates the necessity of any and all hand operation of the steering post throttle and automatically idles the engine in changing speed. When low or reverse clutches are engaged the engine is supplied with more gas automatically and speeded up. As soon as these clutches are disengaged the gas is automatically cut off, preventing the racing of the engine, and making the change from low to high, which is so difficult for amateurs, an easy matter. In addition to the automatic feature is provided a foot throttle or accelerator, which renders driving convenient and identical with high priced car methods of control.

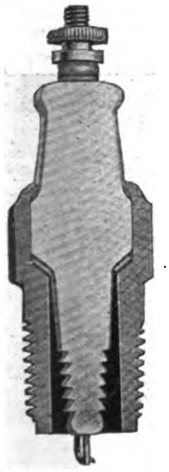
Manufactured by the Versal Products Manufacturing Co., Detroit, Mich. Price, $4.85.



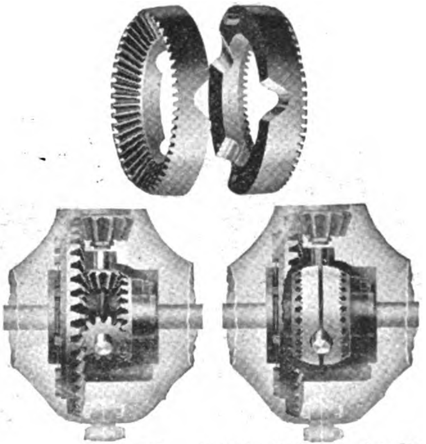
The Speederator Applied.

New Era "Better" Spring Bumpers are light, strong and neat. They are made of 1¾x5/16 inch spring steel, and the construction is such that bumpers made of this size have greater resisting power and absorbing qualities than bumpers of other construction made of steel wider and thicker. The construction is double front bar full length with center tie, giving maximum strength from end to end. When an angle blow is received the vibration is distributed and absorbed throughout the entire length of the bumper and attaching arms.

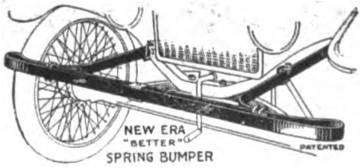
Manufactured by the New Era Spring and Specialty Co., 1177 Hamilton Ave., Grand Rapids, Mich. Write for prices and literature.



The A. C. Carbon Proof Spark Plug.



Badger "Two-Wheel Drive" That Applies Power to Both Wheels.



New Era "Better" Spring Bumper.

The Weston Garage Testing Instrument indicates and locates accurately and quickly the troubles to which electrical systems are liable. Among these are those attributable to deteriorated or run down batteries; short circuits or grounds at any point due to worn sockets; open circuits due to vibration, abrasion or loose lamps; leaks that result in continuous discharge of batteries; brush troubles in the motor or generators or worn commutators, etc. The Weston instrument detects these troubles and is reliable, permanent in calibration and generally serviceable. The instrument illustrated is the Weston model 280 voltammeter, with external shunts for ampere measurements. It is pocket size, has a uniform and legible scale, is quick in action and is shielded from disturbing influences of external magnetic fields. With its six different ranges (300, 30 and three amperes and 30 and three volts and 100 millivolts) it is actually six instruments in one. The price of the instrument is exceedingly low for such equipment. The special inducements offered by the manufacturer will interest every progressive member of the trade.

Made by the Weston Electrical Instrument Co., 103 Weston Ave., Newark, N. J. Write for illustrated literature and prices.

The Curtis Air Compressors for garages and service stations are said to possess exclusive features of unquestioned merit and are guaranteed by the manufacturers who have manufactured pneumatic machinery for over 25 years to furnish a continuous supply of cool, pure, clean air, free from oil. In the Curtis compressors the oil leakage into the cylinder has been overcome by their patented control splash oil system, which regulates the oil supply, permitting only enough oil to reach the cylinder to lubricate it without leaving any excess that can be carried into the discharge line. The result is that practically no oil can get into the tires to rot them and it is claimed that the compressor will run on one-tenth the amount of oil ordinarily required by a splash oil compressor. Handled through the jobbing trade exclusively.

Manufactured by Curtis Pneumatic Machinery Co., 1621 Keinlen Ave., St. Louis, Mo. Write for prices and catalogue.

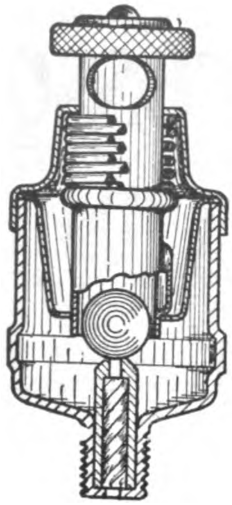
The Lockfast Tire Carrier can be attached to the rear end of any type Ford in a few minutes with a wrench. It is made for one or two tires or demountable rims, holding them in the proper position and securely locking them against theft.

Manufactured and guaranteed by the Lockfast Manufacturing Co., Cleveland, O. For one tire or demountable rim, price $5.50; for two tires or demountable rims, $7. Chas. M. S. Foster, sales director, 243 Columbus Ave., Boston, Mass.; Gray Heath Co., 1440 Michigan Ave., Chicago, Ill.; Geo. L. Holmes, 1733 Broadway, New York.

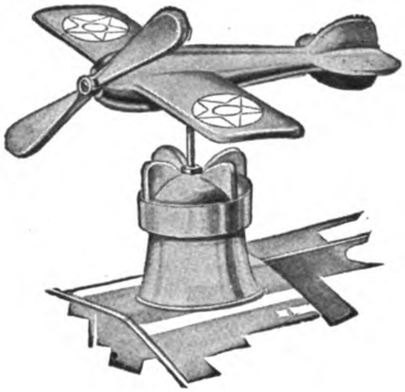
The Smith Auto Signal, manufactured by the Smith Signal Corporation, 53-55 West 66th street, New York City, is a most practical and efficient safety device to meet the dangers presented by congested traffic. The Signal is placed on the left rear fender or mudguard (or panel or body in the case of commercial vehicles and trucks) by an adjustable nickel plated flange. Four nickel knobs are furnished instead of joint and flange where owner prefers. This Signal shows left, right or stop two sides, i. e., both the front and to the rear. The left rear fender is the logical place for the Signal as it is seen by all cars following from the rear, or cars approaching from the front, as well as by the traffic policeman, who is always to the left of cars approaching him. This Signal shows both day and night, and is just as necessary for driving outside of the cities as in cities.

Operates for left, right or stop only at the will of the driver, from a single handle, three-way switch attached to the steering shaft at the tip of the fingers or any place most accessible to the person driving. Indicates what you intend to do before you do it. Buzzer in the switch-tell-tale that Signal is performing its function. Signals through red ruby glass 5x6 inches. Individual illumination of the three words left, right, or stop by 6-8 volt, 10 candle power bulbs. Simply constructed, no moving parts to get out of order. Easily attached, directions with every Signal. Each Signal complete with switch, buzzer enclosed in switch, sufficient weatherproof wire, tape and staples. Packed in individual carton ready for shipping.

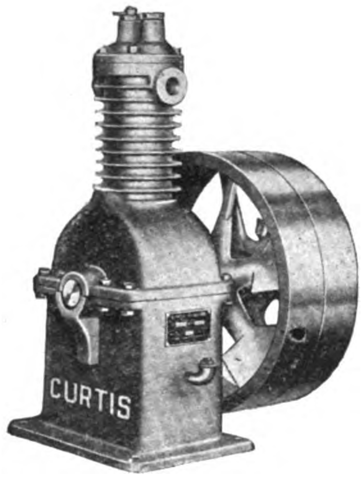
Distributed in United States by Weiss & Sinclair, 53-55 West 66th St., New York City. Write for literature and prices.



Consol Automatic Oiler.



The Liberty Plane.



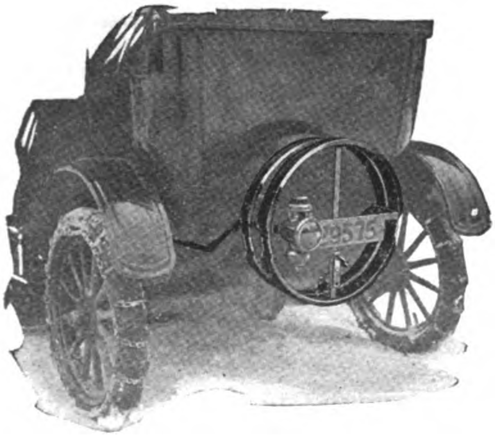
Curtis Air Compressor.

"The Liberty Plane" is both one of the latest and most attractive radiator ornaments and is new and original. It suggests patriotism in a manner that is easily recognized, pleasing, yet different. It is an exact miniature of the aeroplane, cast in aluminum, highly polished and decorated with the flying emblem in red, white and blue enamel on each wing. It will not wear out and is weatherproof.

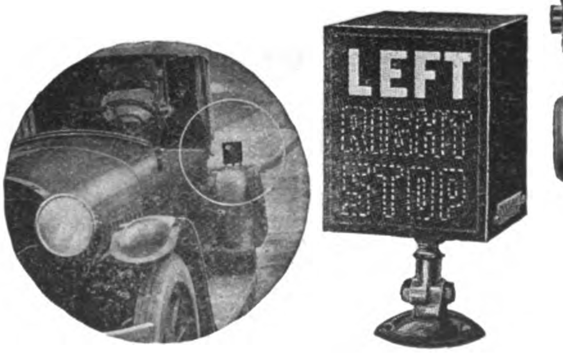
Marketed by the Defender Auto Lock Co., Inc., Marquette Bldg., Detroit, Mich.

The Consol Automatic Oiler, which is automatic in opertion and dirt proof, has many distinct features, fully protected by patents not heretofore used in any oiler. It is neatly made and comes in several styles and finishes. It absolutely prevents leakage of oil onto the bearing when the car is not in motion, for it takes the vibration of the car itself to upset a little ball valve which automatically controls the flow of oil from the cup. Already several automobile manufacturers have placed orders for these oilers, recognizing in same a distinct improvement over other oilers. The company is just starting the production on a large scale

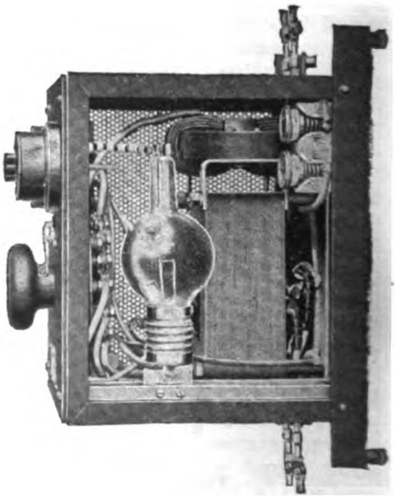
Manufactured by the Consolidated Machine Co., Detroit, Mich. Write for prices and literature.



Lockfast Tire Carrier.



Smith Auto Signal.



Tungar Rectifier.

The Peugeot Type Cylinder Head should be an attractive proposition for the owner who is remodeling his Ford car for speed work. This cylinder head is made of a special grade of semi-steel nickel plated and water jacketed, and fitted with 16 overhead valves, which open directly into the explosion chamber and are operated through push rods, which extend to the regular Ford tappets. The design is such that the spark plugs are located in the center of the combustion chamber. All holes in the cylinder and manifold are Ford standard, therefore no drilling or tapping is necessary. The application of this head is very simple and the makers claim an increase of approximately 100 per cent. in horsepower and much gasoline efficiency.

Manufactured by Laurel Motors Corporation, Anderson, Ind. Price, $95.

Shurnuff Grease Retainer for Ford axles consists of three felt washers, one rubber asbestos washer, a cold drawn steel cup and two retaining rings. The retainer remains stationary, the two rivets that are already in the axle preventing it from turning. The company furnishes a counter display free to dealers with each dozen pairs.

Manufactured by the Shurnuff Manufacturing Co., St. Louis, Mo. Price 90 cents per pair.

The Mosco Tire Rim Tool shown in the illustration is a handy accessory for the car operator using a machine equipped with split rims. This tool is designed to be hooked over the rim. When so applied and the turnbuckle turned the rim is opened, making the replacement of a tire an easy matter. This tool may also be used for expanding the rim after the tire is applied by reversing the process, the untwisting of the turn buckle exerting sufficient pressure upon the rim to expand it.

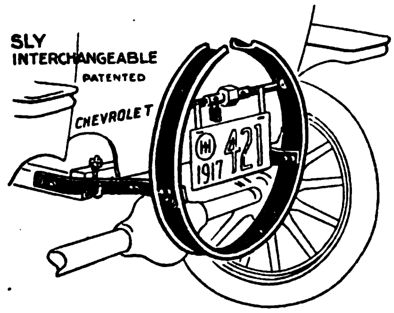
Manufactured by the Mosco Specialties Co., Waltham, Mass. Price, $2.50.

The D. & O. Anti-Wobbler is a simple, substantial device for preventing the wiggle and jiggle of the Ford steering wheels. It is easily attached to the center of the front axle in a few minutes and the makers claim it to eliminate driving accidents by holding the front wheels true at all times, thus preventing loss of control.

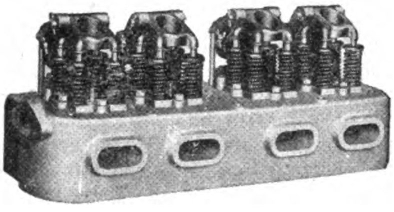
The G. H. Dyer Co., Cambridge, Mass. Write for price and literature.

Pedex, a pedal extension device, makes it possible for two persons of different height to drive the same car with equal comfort. Pedex is designed to be attached to both the brake and clutch pedals, and the use of the permanent pedals is in no way impaired. Two adjustments are possible, so that the foot may be placed in a position of greatest comfort. In touring this article is a great help to the driver, making it possible for him to rest his feet by shifting to a new position.

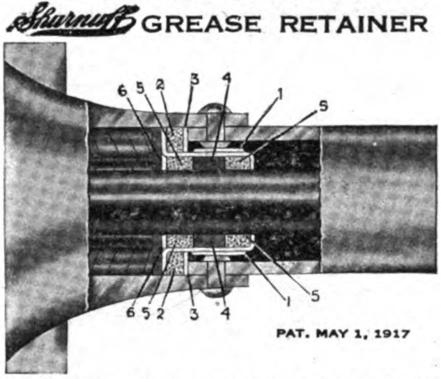
Manufactured by American Car Accessories Co., 529 West 21st St., New York, N. Y. Price, $5 per pair.



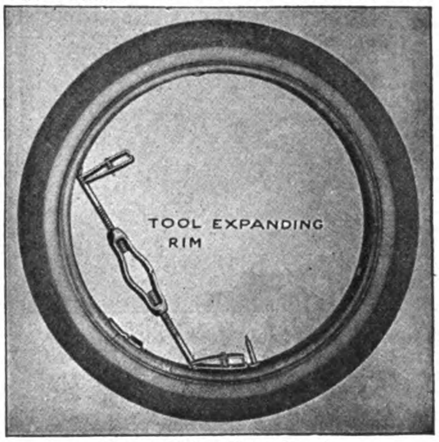
Sly Tire Holder.



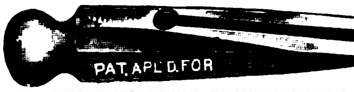
Peugeot Type Cylinder Head.



1. Steel Cup. 2. Large Felt Washer. 3. Large Steel Retaining Ring. 4. Asbestos Washer. 5. Small Felt Washers. 6. Small Steel Retaining Ring.



Mosco Tire Rim Tool.



The Cochran Spring Oiler.

Dixon's Non-Leak Grease No. 680 solves the problem of grease exuding from the rear axle to the brake bands and wheels of the car. Excess grease not only detracts from the appearance, but also produces a danger element, in that the lubrication of the brake bands prevents their proper functioning. It is composed of selected flake graphite, thoroughly mixed with a special adhesive lubricant.

Manufactured by Joseph Dixon Crucible Co., Jersey City, N. J. Write for booklet and dealer's proposition.

The Martin Inner Tube Cases, made for either one or two tubes, are of water proof enameled cloth and offer protection against light as well as abrasion. They offer a practical solution to the exposure problem and pay for themselves by preserving tubes and saving the patience of the autoist.

Manufactured by the Martin Manufacturing Co., Lancaster, O. Price for single tube case, 35 cents; double case, 50 cents.

The Cochran Spring Oiler affords an easy and simple method of getting oil between the springs of the car To use, the car weight is lifted from the springs by means of jacks and the oiler simply inserted between the spring leaves and the oil squirted into the groove of the oiler, from which it flows to the lubricating points.

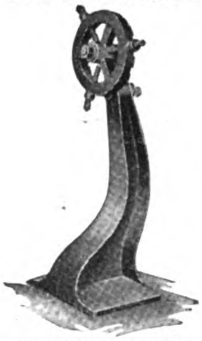
Manufactured by the Cochran Pipe Manufacturing Co. Write for price and literature.

The Akron-Williams Tire Rebuilding Stand is designed for the tire repair shop, used on retread jobs and major sectional repairs. It is similar to stands used for hand operations in tire factories. Unlike the latter, however, it takes up a minimum of floor space and is much lighter in weight without sacrificing convenience or strength. A new feature is the spring ratchet attachment, which permits the tire being turned either way at will, or being locked rigidly in any desired position.

Manufactured by the Williams Foundry and Machine Co., Akron, O. Price $30.

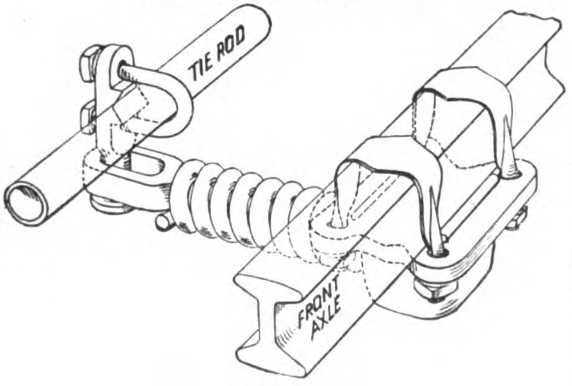
The Schrader Automatic Inflating Valve makes the bottled air lock itself into the tank. When filling the tire the valve is pressed against the valve stem and when the desired pressure is obtained the removal of the valve automatically cuts off all air leakage from the tank. It is made to fit any diameter of hose from ¼ inch to ⅝ inch.

Manufactured by A. Schrader's Son, Inc., 800 Atlantic Ave., Brooklyn, N. Y. Write for prices and literature.

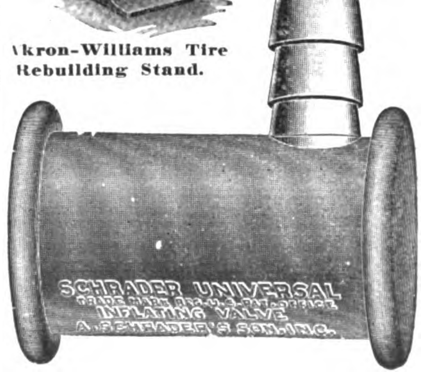


Akron-Williams Tire Rebuilding Stand.

Pedex Pedal Extension.



The D. & O. Anti-Wobbler.



Schrader Automatic Inflating Valve.

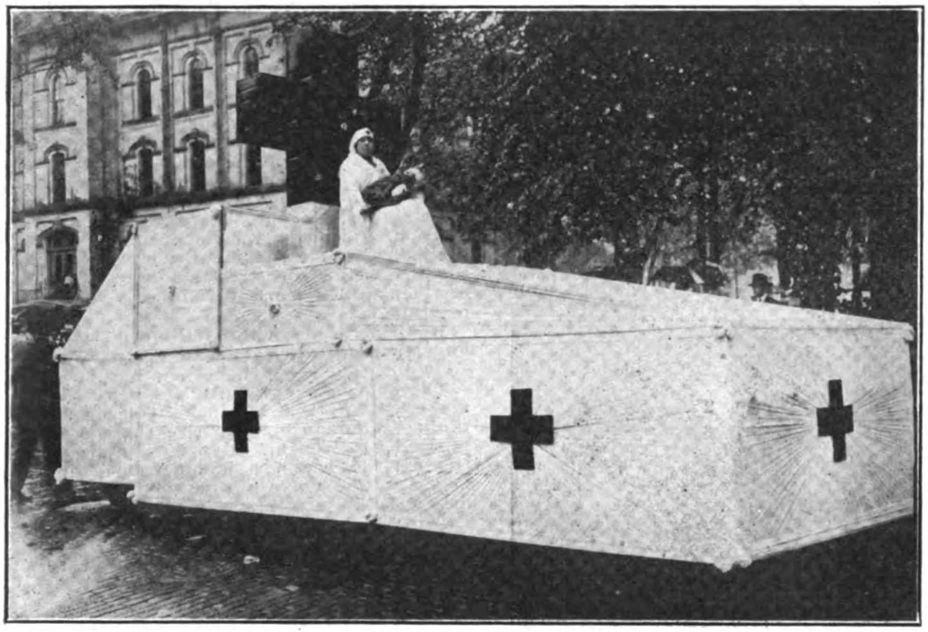
HAPPENINGS AMONG THE CAR AND PARTS MAKERS

What Several of the Leading Manufacturers in the Motor Vehicle Industry and Allied Lines Are Doing or Have Under Consideration

The Lewis-Hall Iron Works, Detroit, Mich., are erecting a one-story frame building to be used for assembling. The company are the manufacturers of the Hall truck and have completed an order for six government trucks.

The Goodyear Tire and Rubber Co., Akron, O., contributed $550,000 to various war activities during the campaigns. This contribution constitutes almost 25 per cent. of the entire amount obtained in the Akron campaign. Approximately 4000 Goodyear workmen have already gone to training camps and to France.

The Saginaw Manufacturers' War Service Co., Saginaw, Mich., has organized with a capitalization of $25,000 to obtain contracts for war material from the United States and allied governments. The incorporators comprise the following: Harry T. Wickes, W. J. Wickes, Fred L. Helfrecht, Walter M. Germain, Hiram A. Savage, W. D. Janes, A. M. Lempke, John Herzog, S. L. Eastman, A. B. Albright, Fred W. Storch, P. J. Drummond, W. M. Guider, John Stenglein, C. V. Hale, A. C. L. Miessler, A. B. Lewless, Harker W. Jackson and John L. Jackson.



The Float Shown Above Was Greeted with Applause As It Passed in Review of the Thousands Who Witnessed the Red Cross and Decoration Day Parades in Toledo, O. Modeled After the Famous Red Cross Poster "The Greatest Mother in the World." The Champion Spark Plug Company of Toledo Conceived the Idea and Miss Hazel R. Eiben Was Chosen from the Girls in the Office to Pose.

The Buda Co., Harvey, Ill., has added a four-story building to its plant and has rearranged the interior of its other buildings so as to be able to add equipment. On account of the increased capacity of the plant, the company has licensed the United States government to have the engines manufactured by other companies.

The Mitchell Automobile Co., Chicago, Ill., distributor of the Mitchell, has added the Selden truck, and the style of the company has been changed to the Mitchell-Selden Sales Co. Mitchell cars and Selden trucks will be distributed in Illinois, Indiana, Wisconsin and southwestern Wisconsin.

The Emil Grossman Manufacturing Co. has opened an office in the Buick building, 1733 Broadway, New York, for export and domestic business. Sidney S. Frank has been appointed manager.

The Scripps-Booth Corporation, Detroit, Mich., has leased the former plant of the Abbott Motor Corporation on East Lafayette Boulevard and will use it for storage and service purposes.

The Everitt Brothers Co., Detroit, Mich., has leased the plant formerly used by the Palmer Manufacturing Co. The plant contains about 40,000 square feet of floor space. They are body painters and finishers.

The C. A. S. Products Co., Columbus, O., will erect a factory which will be ready for occupancy by the middle of July. The present capacity will be quadrupled.

The Bosch Magneto Co., New York, has disposed of its Plainfield, N. J., plants to the Raymond Engineering Corporation, New York, which manufactures gun sights, respirators and rifle magazines.

The Willys-Overland Co. will manufacture a new small passenger car in direct competition with the Ford, a light, low priced, three-quarter ton capacity truck and large truck, the last named to have the Knight engine, according to an announcement made by John N. Willys, president of the company, at the annual meeting of shareholders held in Toledo. He said that after the war the company is planning to turn out 1000 of the new passenger models daily.

"At present," says Mr. Willys, "we are producing between 400 and 500 automobiles per day, so that while we have been carrying for over a year an inventory around $40,000,000, we are assured that this will be greatly reduced in the next four months.

"You will note from our treasurer's report that our banking indebtedness was at its peak on March 31 of this year, totaling $16,998,770. On May 31 this item will stand at approximately $12,358,000, showing a reduction, or approximately $4,630,770, during the months of April and May, and at the same time, as near as can be estimated our cash on hand on May 31 will be over $11,000,000 and amount nearly equal to the amount of indebtedness to our bankers and brokers. During the next four months, on account of the reduction in inventories and contraction of the number of models of cars that we are producing, a much further reduction will be made in our notes payable."

The Traction Motor Corp. has elected the following officers and are as follows: George L. Ewin, president; Edmond Hans and Myron H. Powell, vice presidents; G. J. Wagner, secretary and treasurer. The company is rapidly turning out material for the first 25 tractors.

The Emil Grossman Manufacturing Corporation, New York, N. Y., is using a new kind of wrapper for Red Head Spark Plugs. This consists of a small sheet of wax paper on which is printed, in red, directions for tightening the terminal nut.

The Parkview Sales Co., Detroit, Mich., manufacturers of the Universal truck attachment, is now offering a complete line from the 1¼-ton size, adapted for Ford cars, to the full three-ton job, to be used for converting the largest cars for truck service. Many special bodies are adaptable for use on the Universal truck attachment, and there is also a range of wheel bases available.

John Watt is now manager of the Miller Rubber Co. of Oklahoma City, Oklo. The company has charge of the states of Oklahoma, west half of Arkansas and the Panhandle of Texas. Mr. Watt has been in the tire business for 17 years.

The Firestone Steel Products Co., Akron, O., has been organized to manufacture demountable rims. The interests of the Firestone rim plant has been completely absorbed. The president of the new company is H. S. Firestone. The officers of the company are the same as those of the Firestone Tire and Rubber

Co., with the exception of J. G. Swain, who becomes vice president and factory manager. The officers are: H. S. Firestone, president; H. J. Firestone and A. C. Miller, vice presidents; J. G. Swain, vice president and factory manager; S. G. Carkhuff, secretary; J. C. Robertson, treasurer. The company will also manufacture other metal accessories for automobile wheels and tires.

The National Brake and Electric Co., Milwaukee, Wis., is erecting a new gray iron foundry, core room and auxiliary buildings at its main plant.

The General Motors Corporation, Saginaw, Mich., is planning to build a foundry that will employ 1000 men. It will be built north of the old Marquette plant and will occupy buildings 600 by 1400 feet. This plant will supply part of the requirements of all the subsidiaries of the General Motors Corporation.

The Cutler-Hammer Manufacturing Co., Milwaukee, Wis., is building a combination foundry for castings. It is devoting its entire capacity to the manufacture of electric controlling devices for the United States Navy.

The Auto Parts Manufacturing Co., Milwaukee, Wis., manufacturer of Badger accessories, has changed its name to the Badger Manufacturing Corporation. Walter H. Schwab is president and general manager of the company and Edward J. Cunningham is secretary and treasurer.

The Kerns Motors Co., Beavertown, Pa., is manufacturing a 1½-ton chassis and will be ready for distribution about Aug. 1. It will have a Herschell-Spillman engine and Russel internal drive rear axles. The prices of the chassis with driver's seat is $1800.

The Columbia Body Co, Detroit, Mich., has designed a new hearse and casket combination car, which it calls the "Liberty." The large body can be placed on a Ford chassis. This is by means of the company's chassis lengthener in conjunction with its patented Sampson load carrying unit, making the wheelbase 130 inches. The car is equipped with crown fenders, splash guards, linoleum covered running boards, demountable rim wheels with over-size 31 by 4 non-skid tires and one extra rim. The body retails at $1250 f. o. b. Detroit.

The White Motor Co., Cleveland, O., reports that its output of passenger cars during 1917 amounted to 1000 cars and 5900 trucks. The company states that its truck business for this year will be 60 per cent. above last year. It is now working on an order for 3000 one and two-ton trucks for the United States Army. The company is finishing an order for France for 1500 trucks and since the war began delivered 8000 trucks to Russia and 6000 to France. More than 70 per cent. of the company's capacity is given over to war work.

The Reo Motor Car Co., Lansing, Mich., is turning out about 90 vehicles a day, of which 35 per cent. are trucks. Within 30 days it expects to be turning out its government order for caterpillar tractors.

The Paige Motor Car Co., Detroit, Mich., is now in the last of the four new buildings recently erected for the company, which adds 66,000 square feet to its floor space. The new Paige trucks will be ready for the market in the latter part of July.

The Hackett Motor Car Co., Burlingame, Mich., has started the erection of the new factory, which will be composed of four units. Three of the buildings will be of the same size, measuring 70 by 500 feet and having a floor space of 35,000 square feet each. These units will be built parallel and will be linked together at the end by a two-story fourth unit, 60 by 400 feet, which will contain executive offices, stock room and experimental departments. The total floor space of the four units will be 180,000 square feet and will have a daily capacity of 100 cars.

The Chalmers Motor Co., Detroit, Mich., has increased the price of all Chalmers repair parts 30 per cent.

WE DO VULCANIZING
Come in Now and get your WEED CHAINS
DIXON'S GRAPHITE AUTOMOBILE LUBRICANTS
DIXON'S GRAPHITE AUTOMOBILE LUBRICANTS
ALL MAKES TIRES
DIXON'S
DIXON'S

A Fascinating Display of Dixon's Automobile Lubricants in Accessory Dealer's Window, Featuring Its Popularity with Race Drivers.

Wolverine Tractor Co., Saginaw, Mich., is making plans to manufacture a four-wheel drive machine with a track layer attachment. The company expects to start production in September.

The Long Manufacturing Co., Detroit, Mich., is erecting an addition to its plant. The new building will be 66 by 125 feet and it is expected to be ready within the next two months.

The National Wire Wheel Works, Inc., Geneva, N. Y., is opening service stations on the Pacific coast in the cities of San Francisco, Fresno and Los Angeles. The company also plans to open service stations in Seattle, Spokane and several other western cities in the near future.

The Mason Tire and Rubber Co., Kent, O., has announced that its new solid tire department is ready for operation. The company has installed equipment for the manufacture of this type of tire. The tire will be on the market in a few months.

The Interstate Tractor Co., Waterloo, Ia., has increased the facilities of the factory by the addition of five new buildings; a machine shop, 85 by 200 feet; a testing building, 40 by 80 feet; a loading addition, 40 by 30 feet; a shelter annex, 20 by 60 feet, and a new foundry building, 48 by 100 feet. Since the addition of the buildings the company has been enabled to double its output over the corresponding period of last year. Additional machine shop equipment will be installed.

Illinois Silo and Tractor Co., Bloomington, Ill., will erect a four-story assembling plant on a tract of land at 16th and Holmes streets, Kansas City, Mo., which was recently purchased by the company. The tract covers an area of about 36,000 square feet.

Militor Motor Truck Co., Jersey City, N. J., is building a four-wheel drive truck in the newly established factory at Bergen and Kerney streets. Cornelius Myers, formerly with the Timken Roller Bearing Co., is in charge.

Wisconsin Duplex Auto Co., Oshkosh, Wis., is now retooling and equipping the former plant of the J. L. Clark Carriage Co. and is preparing jigs, dies and special machinery. It will be in regular production about July 1.

Robert Crawford, formerly president and general manager of the Sun Motor Car Co., Elkhart, Ind., is now with the Automotive Corporation, Chicago, Ill.

Guy A. Little, formerly in the Dynamometer department, is assistant to chief inspection of the Curtiss Aeroplane and Motor Corporation, Buffalo, N. Y.

Herman G. Farr is consulting engineer with the Martin Rocking Fifth Wheel Co., Springfield, Mass.

The Widney Resiliometer

THE need of determining the exact qualities of any resilient material used for mechanical purposes has long been known to engineers, but this has never been practically possible until the invention of the Widney Resiliometer, an instrument perfected by President Stanley W. Widney of the Widney Co. and the Advance Felt Specialty and Cutting Co. of Chicago. In contrast with this fact statement may be made that the elasticity and hardness of metals has been practically obtainable by measuring instruments, and a device has been used for a considerable period to determine the resiliency of rubber tires for vehicles. But the accurate measurement of the thickness, hardness and resiliency of numerous materials used in mechanical arts, such as felt, fabrics, rubberized fabric, asbestos, leather, paper, packings of all kinds, fabrikoids, cork or anything that is compressible and has some degree of elasticity when released from compression could not be even approximately obtained.

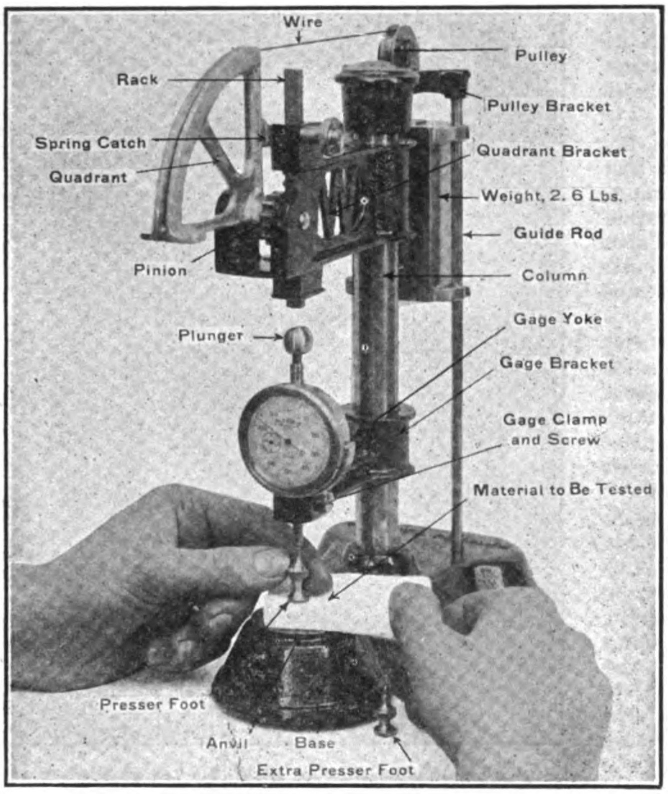
The engineer and the expert mechanic will understand the possibilities of the uses of an instrument that will measure the degree of compression in thousandths of an inch, will measure the degree of expansion of a material when released from a given pressure and will measure thickness of material, in the same terms. In other words, the Widney Resiliometer will measure the thickness, hardness and resiliency of any resilient material quite as accurately as unyielding materials are measured by the standard micrometer gauges, and the indications are on a scale sufficiently large to determine these precisely. With this instrument all resilient materials can be standardized to any one or all three of the factors stated, and obviously these may be used for any mechanical purpose.

The instrument was perfected after four years' investigation, research and experiment by Mr. Widney, and it has been proven to be scientifically accurate. The physical qualities of materials can be positively ascertained, which is a large progress when one understands that until now nothing could be known aside from "judging." Mr. Whitney conceived the instrument with a view of utilizing it in his felt business, but soon realized that the practical uses of it in industrial arts were well nigh universal —that it was not confined to the use he originally intended for it. Demonstration proved that it was almost indispensable in establishing absolute standards with reference to the physical qualities of resilient materials.

With the Resiliometer one can establish definite specifications on resilient mechanical parts. For the first time with it manufacturers will be able to ascertain definitely and positively the specifications best suited for particular needs in any mechanical work. It obviates guessing entirely in any determination. Once a standard has been fixed the manufacturer purchasing any materials for any purpose can order with the exact knowledge of specifications written from the instrument.

Consists of Four Elements.

The Resiliometer is easy to understand and easy to operate, as it consists of four simple elements. It will be clearly understood by reference to the accompanying illustration, which specifies the different parts.



The Resiliometer Measures Thickness, Hardness and Resiliency of Materials.

It consists of the anvil, on which the material to be tested is laid; a direct reading micrometer calibrated to indicate thousandths of an inch, a quadrant actuated by a rack and pinion, which carries the supporting wire for the weight and registers through a plunger directly on the dial and the presser foot that contacts with the material and registers on the dial. Simple as is the operation of the instrument, the development of it has been difficult. Its operation because of this reason has been reduced to the extreme of facility and simplicity, as no more skill is necessary to obtain readings than to read the time of a clock.

How the Records Are Found.

A piece of resilient material is placed between the anvil and the presser foot, and as soon as the presser foot rests securely upon the material the dial hand will indicate the thickness in thousandths of an inch. When this reading is obtained the weight running in a guide at the rear is released and allowed to apply pressure upon the material until it stops from the resistance to compression. The operator then has two readings, the measurements of thickness with and without compression of a standard weight.

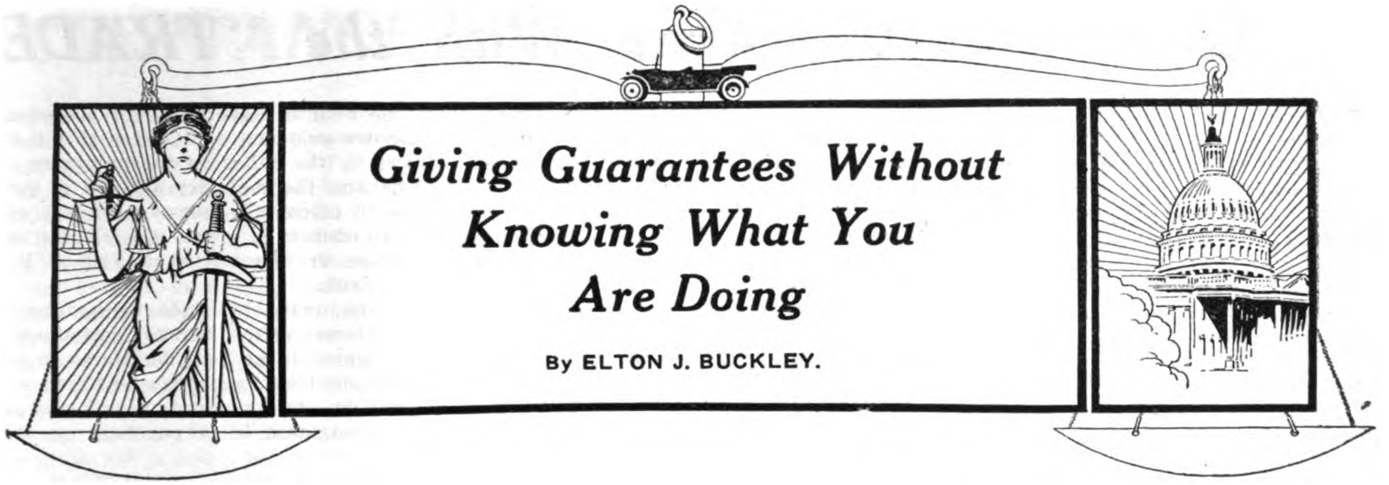
Assume the initial measurement was 1/10 inch and the measurement under compression was .050. Then

Original thickness	100
Thickness under pressure	050

gives the hardness of the material—its resistance to pressure—as 50/100 or 50 per cent. Were the original reading 72 and the reading under pressure 54, then the material would be 54/72, or 75 per cent. hard. A completely incompressible material would show a record of 100 per cent. hardness.

When the reading under pressure has been taken and the weight has been lifted as is provided for by lifting the quadrant of the instrument, the natural resiliency or expansion of the material when released from pressure will be indicated by the hand of the micrometer, which will turn backward. The degree of recovery in thousandths of inches is noted. Assume that the material which registered 50/1000 inch thickness under compression expanded so the indication was .080 when the weight was removed. The recovery amounts to .030, which is 3/5 of 50, or the thickness under pressure, which gives a percentage of resiliency of 60 per cent.

As the Resiliometer dial indicates in thousandths of an inch, obviously the number of possible combination specifications, showing thickness, hardness and resiliency, is very large, and with these practically any conceivable combination of qualities can be specified. The utility of the Resiliometer in any engineering department is evident. With it exact qualities can be determined and these can be obtained with reference to practically any material that is in use. With this instrument truck manufacturers can standardize the felt parts, or any other parts for which resilient material is required, which is a factor of special importance when the demands of the government upon truck manufacturers necessitates obtaining absolute accuracy or standardization of the physical properties of materials. The elimination of guess work in judging qualities in materials is a factor in effecting a saving that may represnt the difference between a profit and a loss.



Giving Guarantees Without Knowing What You Are Doing

By ELTON J. BUCKLEY.

If in your view it is of sufficient interest, I would appreciate it if you would straighten me out in a situation which has arisen in our business.

I believe other wholesale dealers would have the same question arise, but it has never arisen before in our business in exactly this aspect. We have a customer to whom we sell considerable goods. He is very particular and critical, and we have had some difficulty holding his business. We are now in an argument with him over a transaction that took place recently. He ordered a quantity of women's cloth, which we, relying on the representation of the manufacturer, stated was all wool. The price to him was based on the belief that the goods were all wool. The customer now says he suspected that the goods were not all wool, and had a sample analyzed, with the result of finding that they were nowhere near all wool. The writer waited on this customer for these goods, and distinctly remembers being asked if they were all wool and saying that they were, so there is no question about the representation having been made. He says he has made up some of this cloth into suits and it has been found out that it is not all wool, and he has suffered great damages, and he is talking about bringing a law suit against us. We would like to know the position of a dealer who buys goods in good faith from somebody else, on certain representations, and merely passes on those representations to his own customers. Can he get into any trouble if the statements are false? It seems to us that it is highly important for every dealer to know this. We believe his kick is against the manufacturer.

E. K. B. & Bros.

I do not remember ever discussing this precise question. I have discussed the question which arises when a dealer sells something made by somebody else, which injures somebody—who is responsible, the manufacturer or the dealer?—and I only very recently discussed the responsibility of a dealer whose employee sold goods for him under false representations. But the question here presented is different: When a dealer, wholesale or retail, buys merchandise under certain representations as to its character or quality, which merchandise he sells again under the same representations, what is his responsibility, when the representations turn out to be false?

Really the whole answer can be condensed into a few words: It depends on how he sells again under the same representations. If he merely passes the representations on to his customer, stating that they are the manufacturer's and not his, he is not liable no matter what happens. If he makes the representations as his own, without saying that they are the manufacturer's, the liability is his, but, of course, he has a case against the person he bought from.

I apply this to the case cited by this correspondent. Suppose his customer had asked the question: "Is this absolutely all wool?" and he had replied, "Well, we have the manufacturer's word that it is. Of course, we really don't know much about it," no suit could have successfully been brought against him, even if the goods were all cotton.

But if when asked the question he had replied, as most merchants do, no matter how small their real knowledge on the subject, "Yes, indeed, it's all wool—every thread of it!" then the liability would be his, because he had made the false representation his own. The law imputes to a merchant either special knowledge of the goods he sells, or the means of acquiring it, and holds him strictly to the mark. The following is from a leading case on the subject:

> If a person makes a representation under such circumstances that he ought to know whether it is true or false, and it is in fact false, knowledge of its falsity may be implied. To bring a case within this rule the proof should show that the party occupied such a special situation or possessed such special means of knowledge or made it his duty to know as to the truth or falsity of the representations made.
>
> He who represents something which he does not know to be true, or knows to be false, to another's prejudice, or his own gain, is guilty of falsehood and must answer in damages.
>
> If a person makes a statement with the affirmation, express or implied, that he knows it to be true, or that he makes it of his own knowledge, and the statement is in fact false, he is guilty of a fraudulent representation, if he knows that his claim of knowledge is false, and in such a case it can make no difference that he does not know that the statement is false or even that he believes it to be true.

The principle laid down here has been applied in all sorts of cases. Practically all the laws holding dealers in certain goods up to certain standards of quality, such as food laws, drug laws, milk laws, pure fabric and pure leather laws, etc., convict a merchant if he sells goods not in conformity with the law, whether he knew it or not. This on the theory that if he didn't know he ought to know what kind of goods he is selling.

A man who recommends another for credit, representing indirectly at least that he knows enough about the subject to speak intelligently, is liable if the person recommended turns out to be a beat. This whether the sponsor knew it or not.

A house selling a cash register or a computing scale or any store appliance, whether it made it or not, is liable if it says the appliance will do things which it actually will not do. Even though it implicitly believed them.

A long list might be given of cases where dealers have given personal guarantees of goods made by somebody else, which guarantees were mere repetitions of guarantees made to them by the person of whom they had bought. The following extract from a well known case will tell merchants in this position exactly where they stand:

> If a person receives information from others as to a matter, and believing the information to be true honestly repeats it, explaining that he has no personal knowledge, he is clearly not guilty of fraud. On the other hand, if he makes the statement as of his own knowledge and does not disclose the fact that he is merely relying upon the information received from others, he is guilty.

My judgment is that my Chicago correspondent is liable for whatever damages his customer can show he sustained. He made the guarantee of all wool his own. But of course he can recover all his damages from the manufacturer whose fraud was the original cause of all the trouble.

(Copyright, 1917, by Elton J. Buckley.)
Chicago, Ill.

Liquidating Accounts With the “TRADE

THERE has been nothing offered the business man in these strenuous times which will afford him so much relief from the extraordinary credit cares as the “Trade Acceptance,” and no greater demonstration of this fact is to be found than in its general adoption in various lines of business by wholesalers, jobbers and manufacturers who were quick to incorporate it as part of their merchandising systems.

The “Trade Acceptance” has been most aptly styled a time draft or bill of exchange drawn by the seller of merchandise on the buyer for the purchase price of the goods, and bearing on its face the signed acceptance of the buyer with the date and place of payment.

For many years the “Trade Acceptance” has been a part of the business system of the leading merchants and manufacturers in Canada, England, France, Germany and other foreign countries, where it has worked successfully and has been largely responsible for the mobility of credits that has aided business in those countries.

It has been approved in this country by the Federal Reserve Board and when it shows evidence on its face that it is drawn by the seller on the purchaser of goods and the maturity at time of purchase or discount is not over 90 days, exclusive of days of grace, it is eligible for purchase or discount at a Federal Reserve bank.

As the available space is inadequate for a history of the “Trade Acceptance,” or in which to go into details as to its operations, its purpose can be briefly explained by stating that it constitutes an acknowledgment of a purchase on the

TRADE ACCEPTANCE

No.________ Worcester, Mass.,____________191___ $__________

__________ days after date, pay to the order of STENMAN ELECTRIC VALVE GRINDER CO.

______________________________________ Dollars

The obligation of the acceptor hereof arises out of the purchase of goods from STENMAN ELECTRIC VALVE GRINDER CO.

To________________

____

STENMAN ELECTRIC VALVE GRINDER CO.

Due______________191___

By__________________

Form 1—Made Out and Signed by the Seller and Sent to Purchaser for Acceptance and Signature, Lines for Which Are Printed in Red Across Face of This Form.

DETACH AFTER SIGNING

A “TRADE ACCEPTANCE”

Is an acknowledgment by the buyer of a debt to the seller, for merchandise delivered. The buyer agrees to pay at a certain date, at his own Bank, to the seller, the amount of this indebtedness by writing across the Face thereof, “Accepted,” the date, name and address of his own bank and his signature thereon.

This varies from the open account method only in giving the debt a negotiable value.

According to a FEDERAL BANK GOVERNOR'S OPINION, the signing of an Acceptance increases the financial standing of the giver, because it shows prompt paying methods.

Kindly sign attached Acceptance, then forward to STENMAN ELECTRIC VALVE GRINDER CO., 42 Southbridge Street, Worcester, Mass.

Form 4—Explanation for Purchaser and Directions to Follow in Filling Out Form 1.

ACCEPTANCE" A Valuable Business Asset

part of the purchaser which is given to the seller with an order for payment at the end of a stipulated time, and is intended to put mercantile and banking credit operations upon a sounder and more liquid basis. It will accomplish this end by enabling the manufacturer or merchant to cash in on his credits immediately upon sale, and with greater facility than under the old system and at less loss, as the paper he presents at the bank carries his own indorsement, as well as his creditor's promise to pay.

The use of the "Trade Acceptance," however, is not a one-sided proposition as one would suppose at first glance, but is as valuable a business instrument to the buyer as to the seller, the former from its use, being able to establish a better line of credit, while incidentally getting a lower price on his purchases, as he does not expect to pay the extra cost on goods that has to be included by merchants to defray the losses of interest through extended credits or that which covers overdue and bad accounts, which according to statistics totals the amazing amount of 30 per cent. of sales. Furthermore, it establishes a relationship of confidence and good faith between both parties, as well as working for their mutual financial benefit.

Many of the leading industries of the country have placed their transactions on a "Trade Acceptance" basis and with its strong indorsement from the leading financial and mercantile organizations of the world, it is only a question of time when practically every merchant and business man will adopt it in his affairs to retain his business and rating.

The four forms as printed below show an approved type of the "Trade Acceptance" in blank and when filled out meet all requirements.

These forms with name and address printed on them will be furnished to subscribers of the Accessory and Garage Journal at $7.50 per thousand, plus postage costs. Weight four pounds.

Name

Address

Payable at

City

Date

Due Date

Amount $

Covering Invoices

$

Discounted at

Net Proceeds $

Remarks

Form 3—Record of Transaction Retained by Seller.

Amount $

Acceptance Date

Due Date

At Bank

To

Covering Invoices

$

Remarks

Form 2—Retained by Purchaser as Memorandum of Transaction and Date and Place of Maturity on Back of Form 4.

1,000
HELP DRIVE THE KAISER
OUT OF BERLIN

One of a Fleet of 11 Garford Built Liberty Army Trucks Used in a Liberty Bond Parade in Lima, O.

NEW CONCERNS RECENTLY INCORPORATED

Monthly Record of New Business Houses for which Charters Have Been Issued in the Various States and Classified According To Nature of Business

NEWLY ORGANIZED MANUFACTURERS OF CARS.

San Francisco, Cal.; Tractor Motors Co.; $85,000; to manufacture combustion engines for tractors.

Bridgeport, Conn.; Automotive Tractor Co.; $150,000; to manufacture and sell the Schofield automatic tractor and accessories; Charles H. Davis, James R. Booth, Frederick A. Bartlett.

Dover, Del.; Alliance Motor Car Sales Co.; $50,000; to manufacture automobiles, engines, motors, machinery and supplies; C. L. Rimlinger, M. M. Clancy, F. A. Armstrong.

Dover, Del.; Power Truck and Tractor Co.; $2,500,000; to manufacture motor vehicles; C. L. Rimlinger, M. M. Clancy, F. A. Armstrong.

Frederic, Md.; Automotive Tractor Co.; $150,000; C. E. Cline, Thomas E. Kling, George F. Smith.

Kalamazoo, Mich.; Traction Motor Corporation; $200,000; to manufacture tractors and automobiles; George Erwin, Edmund Hans, William Munroe.

Queens, N. Y.; Walburn Motor Truck Corporation; $10,000; G. L. Everett, M. A. Perry, G. C. Walburn.

Columbus, O.; Columbus Tractor Co.; $1,000,000; Foster Copeland, John W. Kaufman, George H. Barker, F. A. Miller, W. A. Miller, Walter A. Jones, F. W. Crawford, D. W. Singleton, E. L. Sharp.

Knoxville, Tenn.; Knox County Motor Truck and Tractor Co.; $10,000; C. H. Jarnagin, H. G. Fowler, Charles D. Wallis, S. R. Caven, W. W. Willis.

Walla Walla, Wash.; Williams-Barnett Tractor Co.; $2000; to sell tractors and accessories; Jay Williams, C. E. Barnett.

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Los Angeles, Cal.; The Floatless Carburetor Co.; $100,000; Herbert V. Leahy, E. M. Hitchcock, C. F. Holland.

New Haven, Conn.; The Todd Rubber Co.; $300,000; to conduct a chain of rubber tires and automobile stores.

Wilmington, Del.; J. & D. Tire Co.; $10,000; to deal in tires and tubes; William F. Smith, Rudolph L. DeLisser, Thomas F. Thornton.

Dover, Del.; Litnum Metal Fabric Tire Co.; $1,000,000; to manufacture metal fabric for all purposes; especially metal fabric for automobile tires; August Littman, Herman E. Mueller, John B. Lange.

Dover, Del.; The Suberts Rubber Products Co.; $2,000,000; to conduct rubber plants and to manufacture all kinds of rubber goods; H. Lindale Smith, Frank F. Geutsch, Frank H. Townsend.

Wilmington, Del.; Anderson Tire Securities Corporation; William F. O'Keefe, George G. Stiegler, J. H. Dowdell.

Chicago, Ill.; American Tire Valve Gauge Co.; $300,000; Phillip J. Maguire, Hugo Gosstrom, B. J. Rosenberg.

Indianapolis, Ind.; The I. & R. Double Tread Tire Co., Inc.; to engage in selling, double treading, repairing and exchanging automobile tires.

Louisville, Ky.; Embry-Rapier Tire Co.; $10,000; Jesse Wallace Embry, Sylvester Joseph Rapier, Sam J. Dant.

Louisville, Ky.; Lottman Automobile Cylinder Oil Co.; $3000; to deal in oils for machinery purposes; Sebastian Lottman, Joseph H. Waterfill, Ethel R. Waterfill.

Boston, Mass.; Hunt Rubber Co.; $50,000; W. D. Rockwood, M. D. Corrigan, M. E. Sullivan.

Detroit, Mich.; National Economy Manufacturing Co.; $1100; to manufacture automobile accessories; S. W. Stewart, A. J. Wenzell, W. W. Wenzell.

Bayonne, N. J; United Auto Supply Stores; $50,000; Raymond H. O'Connor, Gertrude O'Connor, Florence Kenny.

Long Branch, N. J.; Norwood Tire Co.; $2000; David Peskowsky, Hyman Peskowsky; Bennett Peskowsky.

Newark, N. J.; New Jersey Tire and Rubber Co., Inc.; $100,000; to manufacture auto tires; Roy W. Martin, Robert L. Noah, Louis S. Rosenblum.

Brooklyn, N. Y.; Bolton-Wechtel Co.; $20,000; to deal in batteries and automobile accessories; H. J. Wechtel, W. C. Bolton.

Buffalo, N. Y.; Carlmandt, Inc.; $10.000; to deal in automobiles and accessories; I. M. Wiess, W. J. Enright, C. Mandt.

Glen Falls, N. Y.; William F. Ryerson; $10,000; to deal in piston rings; D. E. Barber, M. T. Rogers, W. F. Ryerson.

New York, N. Y.; R. H. Appleby Co., Inc.; $80,000; to manufacture automobile accessories; R. H. Appleby, T. A. Mellon, R. A. Carstensen.

Rochester, N. Y; Columbia Tire Co.; $5000; H. L. Sarachan, D. Colman, J. Gordon.

Gotebo, Okla.; Gotebo Tire and Accessory Co.; $10,000; R. L. Statler, J. M. Reeves, W. R. Patterson.

Miami, Okla.; Miami Auto Supply Co.; $25,000; H. P. Smith, W. S. Rush, E. W. Collins.

Cleveland, O.; Cleveland Flexible Steel Tire Co.; $5000; G. O. Bell, John Keavey, F. P. Wellinger, George W. McIlrath, Jack Taylor.

Youngstown, O.; Tire Shop; $50,000; L. Lloyd Van Epps, R. G. Davis, T. A. Woodman, L. M. Berquist, M. J. Lyons.

Zanesville, O.; Rotary Tire and Rubber Co.; $400,000; Edward O. Sterns, W. F. Hendrich, Mark Plotnich, H. J. Knoedler, G. C. Fergus.

Tulsa, Okla.; Automobile Accessories Sales Co.; $25,000; J. M. Harwell, M. E Rosenow, A. F. Moss.

Madison, S. D.; Auto Owners Tire and Supply Co.; $10,000; George Johnson, Enoch Johnson, Herman Johnson.

Ardmore, Tex.; Broadway Auto Supply Co.; $50,000; W. J. Blair, Robert F. Downs, Dave Strasmick.

Waco, Tex.; McGee Rubber Co.; $75,000; G. S. McGee, Beulah F. Spruce, L. H. Coleman.

Richmond, Va.; Allard Automobile Clock Corporation; $200,000; to manufacture automobile clocks.

Milwaukee, Wis.; The American Spark Plug Co.; $20,000; to manufacture spark plugs and other automobile supplies; Hugo Horn, Henry Wollert, Frank Robinson.

PARTS AND FITTINGS MAKERS.

Chicago, Ill.; National Generator and Motor Co.; $6000; George A. Pearson, George R. Veeder, Thomas M. Whitson.

Watseka, Ill.; Patterson Motor Co.; $50,000; George F. Patterson, Frederick D. Vennum, Merrill M. Kistner.

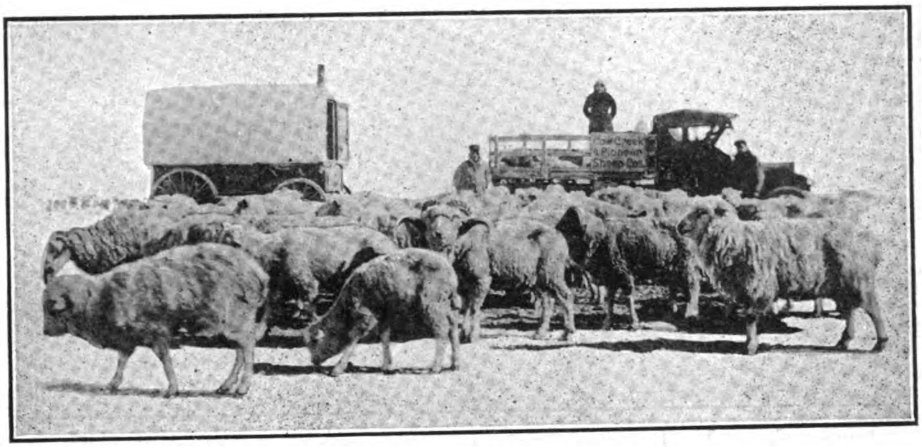
Arlington, N. J.; Lincoln Tool and Die Co.; $20,000; Albert M. Gillen, John S. Gillen, Jessie Gillen.

New York, N. Y.; Bury Motor Co.; $20,000; S. E. Wells, J. A. Cary, G. H. Benson.

Alliance, O.; Alliance Auto and Tool Co.; $20,000; J. A. McCaffery, George W. Fertin, Charles L. Luce, John P. Schmidt, C. S. Parker, William Stermer.

Canton, O.; Evans Motor Co.; $50,000; Linn Colbert, George R. Grant, Harvey H. Barker, T. Oscar Evans, Frances Metz.

Columbus, O.; Central States Motors Co.; $25,000; Henry B. Albright, Daniel J. Hallissy, Raymond Grant, Lillian C. Toland, A. V. Sawyer.



White Truck and Trailer Used as Camp by Supt. Eversoll of a Wyoming Sheep Ranch and Driven by His Wife During Winter to Haul Stock Feed.

Youngstown, O.; Independent Motor Co.; $300,000; Nathan Hallett, Charles A. Smythe, H. C. Mickels, Frank L. Leish, A. W. Frantz.

Collinsville, Okla.; Buckles Motor Co.; $25,000; Ray Buckles, O. Halliburton, D. L. Burgess.

Dallas, Tex.; Majors Motor Co.; $20,000; J. A. Majors, L. B. Shaver, Susie Shake.

Orange, Tex.; Hill Motor Co.; $30,000; I. L. Hill, R. L. Lester, J. C. Tracy.

Texarkana, Tex.; Creekmore Motor Co.; $20,000; J. J. Creekmore, James Hubbard, C. H. Moore.

GARAGES AND REPAIR SHOPS.

Dover, Del.; Kingessing Garage Co.; to conduct a garage business; $25,000; George W. Miller, Frederick G. Blessing, J. A. Blessing.

Chicago, Ill ; Drover Exchange Garage; $1000; George Rhines, L. C. Rhines, R. C. Rhines.

Chicago, Ill ; Joliet Auto Sales and Garage Co.; $5000; Francis V. Healy, Edward V. Peterson, A. V. Carney.

Chicago, Ill.; The Real Garage; $10,000; Maud G. Wamser, Walter F. Cooling, Joseph Slama.

Brooklyn, N. Y.; The Fourlight Garage Co.; $5000; J. Woodenbury, J. Rott, R. M. Hart.

Brooklyn, N. Y.; The Montrose Garage; $10,000; H. Hochman, S. Hoenig, M. Rosen.

New York, N. Y.; State Garage; $15,000; to operate a garage business; W. W. Hunter, E. J. Harlan, T. J. Meehan.

Schenectady, N. Y.; C. & H. Garage Co.: $6000; V. E. Consalus, W. H. Hathaway, E. R. Hatheway.

Canton, O.; McKinley Garage Sales Co.; $10,000; T. F. Albee, W. C. Buttereld, E. E. Downs, J. D. Hunter, C. M. Crane.

Canton, O.; Walnut Garage Co.; $20,000; Fred Jackson, William S. Yohe, William Simpson, C. T. Clark.

Cleveland, O.; West Lake Garage Co.; $10,000; S. Y. Allen, E. Weinberger, L. Wurstner, Albert D. Milligan, Joseph J. Klein.

Norwalk, O.; Big Garage Co.; $99,000; A. J. Reamer, C. F. Jackson, Fred W. Cook, J. F. Henniger, B. B. Wood, W. R. Turner.

Portsmouth, O.; Oakland Garage Co.; $5000; H. E. Frowine, William L. Cook, Emma K. Butcher, Catherine B. Hofner, Mabel L. Knost.

Tulsa, Okla.; Liberty Garage and Service Co.: $5000; H. P. Smith, W. A. Ralston, F. W. Bye.

Summerville, S. C.; The Summerville Garage; $3000; George Von Ohsen, president; William B. Bischoff, manager; R. W. Meyer, secretary and treasurer.

DEALERS IN AUTOMOBILES AND MOTOR TRUCKS.

Little Rock, Ark.; Automotive Service Co.; $10,000; F. L. Oilar, R. D. Oilar, H. R. Oilar.

Dover, Del.; United States Motor Truck Sales and Service Co.; $225,000; to sell trucks; William H. Skirm, E. Tracy.

Wilmington, Del.; Penn American Motor Car Co.; $25.000; to deal in automobiles, trucks and tractors; F. D. Buck, M. I Hort, K. E. Longfield.

Chicago, Ill.; Englewood Overland Sales Co.; $10.000; Hedley V. Brown, Charles H. Fisher, Frank C. Verles, Redfield C. Lucas.

Chicago, Ill.; Joliet Auto Sales and Carriage Co.; $5000; Francis V. Healy, Edward V. Peterson, A. V. Carney.

Chicago, Ill.; Northwest Auto Sales Co.; $10.000; Edward H. Forke, Robert G. Fritsch, Walter L. Wenger.

Springfield, Ill.; The Indiana Harbor Motor Transportation Co.; $25,000; N. M. Adams, George Lungu, George Hoadrea.

Boston, Mass.; Packard Motor Exchange Co.; $50,000; John E. Quimby, Eleanor G. Quimby, F. C. Graves.

Wakefield, Mass.; Wakefield Motor Mart, Inc.; $50,000: John S. Griffiths, C. A. Aker, John D. Griffiths.

Battle Creek, Mich.; Camp Custer Bus Co.; $25,000; Guy B. Perry, A. J. Cantrell, C. A. Black.

Kalamazoo, Mich.; Baumann Motor Sales Co.; $20,000; Virginia M. Peck, Glen A. Bowne, N. J. Baumann.

Newark, N. J.; Mutual Trans-Express Co.; $100,000; to deal in automobiles; Earle E. Burkhard, H. M. Eick, Arthur Harris.

Trenton, N. J.; Electric Service Co.; $250,000; William J. Van Vleck, Charles D. Winters, George H. Palmer.

Bronx, N. Y.; Concourse Motor Sales Co., Inc.; $1000; to manufacture motors; Mathew J. Hogan, Lillian D. Samberg, Lawrence Samberg.

Bronx, N. Y.; Cuneo Storage Co.; $5000; to engage in a storing, trucking and carting business; Anthony Cuneo, Kate Cuneo, John Cuneo.

Bronx, N. Y.; Mason Delivery Co., Inc.; $2000; Henry Mason, Arthur Werner, Emanuel Goodman.

Buffalo, N. Y.; Prospect and Service Corporation; $25,000; to engage in automobile business; T. A. Cohane, R. W. Brunner, O. Levee.

New York, N. Y.; Chelsea Seryice Station; $10.000; to conduct an automobile and garage business; A. Brandman, B. Miller, S. Raines.

New York. N. Y.; Duplex Truck Sales $5000; L. C. Bossemeyer, C. R. Richardson, J. E. McKeown.

New York, N. Y.; Overland Motor Transportation Corporation; $50,000; E. R. Katz, W. H. Huelser, R. M. Ford.

New York, N. Y.; Rosoff Motor Transportation Co.; $10,000; N. J. Packard, J. Rosoff, S. Rosoff.

New York, N. Y.; Thompson Trucking Co., Inc.; $2000; to deal in a general trucking, contracting and stevedore business; James J. Thompson, William McNeeley, Arthur N. Slomon.

Syracuse, N. Y.; Central New York Auto Express; $20,000; B. Wiles, J. B. Neily, E. R. Bristol.

White Plains, N. Y.; Citizens Motor Service, Inc.; $50,000; to deal in automobiles and trucking; Joseph G. Knapp, Henry Bulle, Archibald Hutchinson.

Cleveland, O.; Abbott Motor Car Co.; $10,000; A. Cannon, H. F. Burns, J. E. Spittorf, H. A. Spring, Jay P. Taggart.

Cleveland, O.; Briscoe Motor Sales Co.: $1500; John Pirample, Kate Pirample, Thomas A. Krivanek, Joseph Fred Palecek, Anna Palecek.

Cleveland, O.; Cleveland Auto Laundry Co.; $10,000; R. M. Allen, George Q. Keeley, Fred Desberg, M. E. Atkinson, G. E. Buchheit.

Cleveland, O.; Craig Tractor Co.; $35,000; to sell and deal in tractors and accessories; Charles P. Hine, Joseph E. Wurstner, K. E. Murray, Walter L. Flory, Amos Burt Thompson.

Cleveland, O.; Lexington Motor Co.; $10,000; L. A. Dunham, Dew R. Sipe, S. W. Sangster, L. L. Livingston, C. N. Bowen.

Cleveland, O.; Ralph Motor Sales Co.; $25,000; N. C. Ralph, M. Geibricher, Thomas Fricker, J. L. Smith, L. M. Noch.

Chillicothe, O.; Buckeye Automobile and Taxicab Co.; $10,000; N. N. Weber, G. F. Wilson, Henry Knight, L. O. Wadley, C. D. Savieres.

Cincinnati, O.; Aetna Automobilist Service Co.; $10,000; James L. Patton, L. F. Ratterman, Thomas Murphy, Robert Kranken, John W. Cowell.

Dayton, O.; Dayton Cooperative Auto Co.; $25,000; R. E. Smith, S. A. Smith, C. Beard, George Beard, P. A. Gose.

Columbus, O.; Central States Motors Co.; $25,000; Henry B. Albright, Daniel J. Hallissy, Raymond Grant, Lillian C. Toland, A. V. Sawyer.

Columbus, O.; United Motor Sales Co.; $60,000; Egbert L. Enggin, Paul B. Marson, D. C. Hitt, W. H. Rible, A. C. May.

Youngstown, O.; City Auto Service Co.; $50.000; Myers Moranz, T. J. Loftus, P. J. Loftus, Samuel Moranz, S. R. Moranz.

Youngstown, O.; Service Motor Truck Sales Co.; $50,000; H. A. Wiley, William Lewis, O. R. Cubbison, Alfred Howell, Mary A. Wiley.

McAlester, Okla.; Gwin Automobile Co.; $5000; T. T. Lewis, J. H. Gwin, D. A. McDonald.

Oklahoma City, Okla.; Crane-Haynes Motor Sales Co.; $10,000; Ross Crane, Charles C. Crane, F. H. Hayers.

Oklahoma City, Okla.; Service Automobile and Tire Co.; $10,000; W. H. Hedrick, Gus Diamond, H. C. McQuald.

Tulsa, Okla.; Forster-Davis Motor Corporation; $150,000; S. W. Parish, Fred L. Gordon, Guy M. Davis.

Florence, S. C.; The Florence Overland Sales Co.; $5000; Charles E. Commander, W. B. Rollins.

Sumter, S. C.; The Chandler-Harmon Motor Co.; $1000; G. C. Chandler, W. T. Harmon.

Sioux Falls, S. D.; Dakota Motor Sales Co.; $25.000; O. R. Davis, E. P. Towney, G. W. Torberson.

Beaumont, Tex.; Doster Motor Car Co.; $10,000; F. C. Weber, F. S. Craver.

Jefferson, Tex.; Jefferson Motor Co.; $1800; William Gross, C. W. Langenstein. G. S. McCasland.

Boydton, Va.; Beales, Bedinger & Gregory, Inc.; $25,000; to conduct an automobile business; M. H. Beales, F. C. Bedinger.

Lynchburg, Va.; Leftwich Motor Co., Inc.; $100,000: to conduct an automobile business; R. F. Leftwich, R. B. Tankerly.

San Angelo, Tex.; Buck-Cox Auto Agency Co.; $10,000; Walter Buck, K. B. Cox, L. B. Cox.

Waco, Tex.; Overland Sales Co.; $21,000; Walter Roach, C. D. Adams, E. F. Zarr.

Richmond, Va.; St. George Auto Service Co.; B. Tierman, E. V. and W. R. Rumage.

Waupun, Wis.; Mieklejohn Garage Co.; $50,000; to deal in automobiles, tractors and automobile accessories; James W. Mieklejohn, John Mieklejohn, Alice Mieklejohn, Aggie I. Mieklejohn.

DEARBORN TRUCK CO.

New Truck Plant of the Dearborn Truck Co., Chicago, With More Than Four Times the Capacity of the Old Factory.

RECORD OF NEW BUILDING PLANS

Contracts Made and Plans Contemplated for Alterations or New Buildings

CONTEMPLATED PLANS AND SPECIFICATIONS.

Phoenix, Ariz.; Edward Rudolph; one-story garage at Adams and Fourth streets; $10,000.

Phoenix, Ariz.; Mary H. Engel; one-story garage at 1111 E. Willetta street; $1500.

Phoenix, Ariz.; L. H. Buck; one-story garage at 17 S. 13th avenue; $1800.

Los Angeles, Cal.; James E. Bell; one-story garaga at 1728 Highland avenue, 50x160.

Los Angeles, Cal.; L. G. Lauden; one-story garage at 1431 S. Los Angeles street, 50x135.

Manteca, Cal.; J. A. Henas; one-story garage, 64x75.

Denver, Col.; Conway-Bogue Realty Investment Co.; one-story garage at 18th avenue and Lincoln street; $55,000.

Denver, Col.; Fred Cramer; one-story filling station, 32x48; $3000.

Bridgeport, Conn.; Herman Ostrofsky, 201 Capital avenue; one-story public garage, 34x55; $5000.

Waterbury, Conn.; R. C. Field, 77 W. Main street; one-story public garage, 100x50; $15,000.

Wilmington, Del.; David H. Ghmann, 810 Lombard street; eight one and two-story garages, 9x17 each; $2500.

Wilmington, Del.; Clarence Walker Garage, 701 Van Buren street; three-story garage, 25x75; $18,000.

Washington, D. C.; Emerson & Orme; one-story garage, 53x100.

Savannah, Ga.; J. C. Lewis Motor Co.; one-story garage, 68x90, at Oglethorpe and Barnard streets; $15,000.

Chicago, Ill.; F. P. DeMoney, 5 N. La Salle street; one-story private garage, 26x24; $2000.

Chicago, Ill.; John Zipprich Teaming Co., 528 Veeder street; one-story garage, 44x75; $12,000.

Chicago, Ill.; E. J. Patelski, 4431W. Madison avenue; one-story garage, 50x150; $12,000.

Chicago, Ill.; A. C. Charvat, 1803 Ashland avenue; one-story private garage, 22x35; $4500.

Chicago, Ill.; M. & M. Teaming Co., 537 Dearborn street; one-story garage, 50x125; $9000.

Chicago, Ill.; Herman Becker, 2122 Western avenue; one-story private garage, 26x66; $2500.

Chicago, Ill.; Nelson Refining Co., 2637 Southport avenue; one-story garage, 50x120; $10,000.

Chicago, Ill.; Gustof A. Johnson, 530 W. 60th street; one-story public garage and machine shop, 33x100; $6500.

Chicago, Ill.; E. J. Ohrenstein, 105 S. Dearborn street; one-story garage, 48x67.

Chicago, Ill.; Indian Refining Co., Inc., 122 S. Michigan avenue; one-story oil distributing station; $50,000.

Cicero, Ill; Tim Kenealey, 1418 S. 50th avenue; one-story garage, 50x60; $1500.

Cuba, Ill.; Cuba Motor Co.: one-story public garage, 50x80; $4000.

Huntley, Ill.; John Weltzien; one-story garage and salesroom, 100x100; $12,000.

London Mills, Ill.; R. H. Sampson & Sons; one-story garage, 50x100; $6000.

Ottawa, Ill.; Standard Oil Co., 719 Columbus street; one-story service station; $4000.

Syracmore, Ill.; Standard Oil Co., Joliet, Ill.; one-story filling station; $3000.

Columbus, Ind.; Henry Horm; one-story garage, 90x150.

Greenfield, Ind.; Monger & Son; one-story public garage, repair shop and display room, 77x120.

New Albany, Ind.; Overland Motor Co.; one-story garage, 40x117.

Union Mills, Ind.; Group White Co.; one-story public garage, 50x100; $8000.

Council Bluffs, Ia.; A. A. Clark, 421 W. Broadway; one-story garage, 50x100; $8000.

Cresco, Ia.; Standard Oil Co.: one-story filling station, 13x24; $3500.

Des Moines, Ia.; Consigny Motor Co.; one-story garage, 100x120, at 1314-18 Walnut street; $25,000.

Grand Junction, Ia.; Fred Melton; one-story garage, 66x132; $15,000.

Iowa City, Ia.; Frank Kouba; one-story garage, 80x150x200.

Marshalltown, Ia.; Indiana Petroleum Co.; Cedar Rapids, Ia.; one-story filling station; $3000.

Sioux City, Ia.; Philip Bernard Co., 2200 Floyd avenue; one-story garage, 30x42; $4000.

Storm Lake, Ia.; Brader Auto Co.; one-story garage; $50,000.

Sutherland, Ia.; John Bruner; one-story garage, 50x120; $3000.

Baxter Springs, Kan.; J. B. Arbuthnot; one-story garage, 140x145.

Clearwater, Kan.; Abel & Son Motor Co.; one-story garage, 50x130; $8000.

Independence, Kan.; Independence Motor Co.; one-story garage, 50x140; $25,000.

Osage City, Kan.; Miller & Schroeder; one-story garage, 60x140; $15,000.

Rolla, Kan.; A. Grinder; one-story garage, 60x60.

Tonganoxie, Kan.; C. E. McNerney; one-story garage, 50x100; $800.

Topeka, Kan.; Warren Crosby Dry Goods Co., 613 Kansas avenue; one-story garage, 50x70.

Ashland, Ky.; J. H. McCleary; two-story commercial garage, 50x100; $10,000.

Owensboro, Ky.; Earl Wood Motor Co.; one-story garage; $10,000.

Richmond, Ky.; Fulton Brick Works, Virginia building; one-story garage, 45x125x14; $4000.

Monroe, La.; Milner Motor Co.; one-story garage, 55x110; $21,000.

Baltimore, Md.; Victor S. Harding, 1825 Warmick avenue; eight one-story garages, 16x20; $4000.

Baltimore, Md.; Weitzer Brothers, 2212 McElderry street; one-story brick garage, 15x40, at 528 Maderia street.

Baltimore, Md.; William M. Hottendorf, 1768 Carswell street; 16 one-story garages, 12x20 each; $10,000.

Baltimore, Md.; A. Schauman & Co.; one-story garage, 82x69, at Fremont avenue and Mulberry street.

Baltimore, Md.; Emerson-Morgan Coal Co.; one-story garage, 35x135.

Baltimore, Md.; J. M. Curran: one-story garage, 60x200; at Garrison lane and Franklin street.

Baltimore, Md.; City Realty Co.: one-story garage, 50x134: at Park Heights and Hillsdale avenues; $7000.

Boston, Mass.; George W. and F. E. Johnston, 10 State street: two one-story auto service stations, 55x200.

Boston, Mass.; Ella C. Adams: one-story garage at 539 Center street; $65,000.

New Bedford, Mass.; Daniel McAuliffe, 490 Purchase street; one-story public garage, 50x100; $10,000.

Pittsfield, Mass.; City Garage and Sales Co., 501 North street: three-story garage and sales room, 100x120.

Webster, Mass.; Henry J. Steinberg; one-story public garage, 40x120; $15,000.

Worcester, Mass.; M. Barskg, 21 Green street: one-story public garage, 134x200; $40,000.

Detroit, Mich.; Otto H. Kavieff, 712 Empire building, one-story public garage, 30x110; $8000.

Detroit, Mich.; C. W. Yaeger, 282 Parkview avenue: one-story garage, 60x100; $2000.

Detroit, Mich.; Fred Endert, 2352 Michigan avenue: one-story garage, 30½x108; $6000.

Detroit, Mich.; Garden Court Apartments: one-story private garage, 100x101; $20,000.

Grand Rapids, Mich.; A. M. Turner: one-story garage, 44x95; $12,000.

Grand Rapids, Mich.; I. H. Gingrich & Son; one-story garage, 50x100; at Marke avenue and Fulton street.

Glyndon, Minn.; L. Crawford: one-story garage, 50x80.

Sleepy Eye, Minn.; S. A. Wooldrick; one-story garage, 90x100.

St. Cloud, Minn.; D. S. Hayward; four-story commercial garage, 100x125.

St. Louis, Mo.; Albert G. Eckhardt; one-story garage, 100x105: at Pine street and Leffingwell avenue; $5000.

St. Louis, Mo.; Yale Garage and Motor Car Co.; one-story garage at Eighth and Lucas streets; $50,000.

Butte, Mont.; Kremer, Sanders & Kremer; one-story garage, 40x60.

Ashland, Neb.; Tefelberg Auto Co., Wahoo, Neb.; one-story garage, 80x121; $12,000.

Beatrice, Neb.; Leonard Purdy; one-story garage, 50x140; $12,000.

Lincoln, Neb.; C. W. Roberts; one-story garage, 50x135; at 1933 O street; $5000.

Omaha, Neb.; Nels J. Skogman, 812 N. 35th street: one-story public garage, 80x125; $20,000.

Omaha, Neb.; A. A. Clark, 421 Broadway, Council Bluffs, Ia.; one-story garage; $8000.

Omaha, Neb.; Alex Beck, 208 Keeline building; one-story public garage, 39x140; $10,000.

Omaha, Neb.; E. F. Hayden: one-story garage, 99x115; at 25th and Dodge streets.

Chatham, N. J.; Conklin & Convery, 28 Central avenue, Newark, N. J.; one-story public garage, 57x130; $15,000.

Elizabeth, N. J.; E. A. Abraham, 425 S. Park street; two-story storage garage and sales room, 77x80x111; $18,000.

Jersey City, N. J.; Standard Development Co., 279 Grove street; one-story garage, 25x55; $3000.

Jersey City, N. J.; Casino Realty Co.; one-story garage, 72x150.

Newark, N. J.; John Ebersberger; one-story garage, 100x100; at 29 Gotthart street; $8000.

Newark, N. J.; Leonard Lorentowix; one-story garage, 50x88; $9000.

Newark, N. J.; Tony Paduanno, 31 Delancy street; one-story garage, 38x50; $3500.

Newark, N. J.; Stanley Walenzak, 515 Market street; one-story public garage, 36x37; $2500.

Newark, N. J.; Vitale Cincenia, Fifth street and Park avenue; one-story garage 20x80 and 20x41; $5000.

Newark, N. J.; Abraham Max, 119 Bergen street; one-story garage, 28x105; $7500.

Newark, N. J.; P. T. Reilly, 164 Teawson street; one-story garage, 28x50; $2000.

Newark, N. J.; Joseph Ramaglia, rear 221 Summer avenue; one-story public garage, 50x50; $4000.

Paterson, N. J.; George A. Post, 607 E. 28th street; one-story private garage, 20x20; $2000.

Trenton, N. J.; Joseph Steinhert, 127 Mulberry street; two-story private garage, 30x55; $3000.

Albany, N. Y.; Mrs. George Krauss, 908 Broadway, Rensellaer, N. Y.; one-story garage, 25x65; $3000.

Brooklyn, N. Y.; Abraham Morono, 1770 Park place; one-story garage, 75x100; $30,000.

Brooklyn, N. Y.; Nellie Hankin; one-story garage, 29x50; $2000.

Brooklyn, N. Y.; Ragner Hendrickson; one-story garage, 25x33; $2000.

Brooklyn, N. Y.; Louis G. Leveritt, 440 E. 19th street; one-story garage, 20x29; $2000.

Brooklyn, N. Y.; William P. Trinken, 1424 Flatbush avenue; one-story garage, 18x102; $2500.

Brooklyn, N Y.; Isadore Pajer, 34 W. 21st street; one-story garage, 25x55; $2000.

Brooklyn, N. Y.; Lancup Realty Co., 215 Numtague street; one-story garage, 20x100; $50,000.

Brooklyn, N. Y.; E. J. Meissinger, 394 Graham avenue; one-story garage, 51x102; $9000.

Brooklyn, N. Y.; Richnitz Brothers, 44 Court street; two-story garage, 11x200; $9500.

Brooklyn, N. Y.; Thomas Simonetti; one-story garage, 36x60; $4000.

Brooklyn, N. Y.; S. Millman & Sons, 1780 Pitkin avenue; two-story public garage, 112x200; $105,000.

Brooklyn, N. Y.; Henry C. Wetloran; one-stoty garage, 20x20; $12,000.

Brooklyn, N. Y.; Lewis Salkin, 116 Graham avenue; one-story public garage, 50x100; $9000.

Brooklyn, N. Y.; Hazel Pastorfield; one-story garage, 25x45; $2500.

Brooklyn, N. Y.; Benjamin Tuercano, 121 Bay 11th street; one-story garage, 36x86; $14,000.

Brooklyn, N. Y.; John Deinhardt, 276 Hamburg avenue; one-story public garage, 50x95; $12,000.

Brooklyn, N. Y.; Maria Valpe, 135 Bayard street; one-story garage, 45x103; $10,000.

Brooklyn, N. Y.; Frederick Winkler; one-story garage, 18x100; $2000.

Brooklyn, N. Y.; Rose and Hennie Tereno, 573 Sadgett street; one-story garage, 50x70; $7000.

Brooklyn, N. Y.; Henry J. Wolf, 892 71st street; 11 one-story garages, 16x17; $3500.

Brooklyn, N. Y.; Isaac Miller; one-story garage, 116x127; $30,000.

Brooklyn, N. Y.; Barney Cohen, 167 17th street; one-story garage, 20x100; $4000.

Brooklyn, N. Y.; William H. Perrene, 826 Lincoln place; seven two-story garages, 60x115; $25,000.

Brooklyn, N. Y.; Michael Reilly, 211 Bend street; one-story garage, 75x200; $20,000.

Brooklyn, N. Y.; Herman Novazk, 652 Broadway; one-story garage, 30x50; $2000.

Brooklyn, N. Y.; John Sarine, 293 21st street; one-story public garage, 60x100; $12,000.

Brooklyn, N. Y.; Serota Brothers; one-story garage, 40x180; at 1462 Broadway; $25,000.

Brooklyn, N. Y.; H. and M. Rosen; one-story garage, 40x90; at Newport avenue and Thatford street; $10,000.

Brooklyn, N. Y.; Realty Circle; one-story garage, 104x114; at Coney Island avenue and Montgomery street.

Brooklyn, N. Y.; Rabel Brothers; one-story garage, 25x100; at Junius street and Glenmore avenue.

Brooklyn, N. Y.; M. Levy and E. Plotz; one-story garage, 71x105; at 38th street and Hamilton avenue.

Brooklyn, N. Y.; R. E. Landcus Co.; one-story garage, 122x140; $35,000.

Brooklyn, N. Y.; Fried and J. Eig; one-story garage, 75x125; at Leonard and Meserole streets; $18,000.

Brooklyn, N. Y.; Harry Pinover, 44 Court street; one-story garage, 11x22; $36,000.

Brooklyn, N. Y.; J. Coravola, 292 Hart street; one-story garage, 25x40; $3000.

Brooklyn, N. Y.; Willoughby Garage Co., 260 Broadway; one-story garage, 100x185; $35,000.

Brooklyn, N. Y.; Montrose Garage Co., Inc., 64 McKibbon street; one-story garage, 50x100; $12,000.

Brooklyn, N. Y.; Grande Associates, 26 Court street; one-story garage, 60x100; $15,000.

Brooklyn, N. Y.; Stephen Morris, 1808 Myrtle avenue; one-story garage, 100x100; $15,000.

Brooklyn, N. Y.; Catherine Coughlin, 773 Hicks street; one-story garage, 30x46.

Brooklyn, N. Y.; Harry Gruber, 1105 Third avenue, New York; one-story garage, 20x35; $2500.

Brooklyn, N. Y.; Margaret Nagal; one-story garage, 20x60; $3000.

Brooklyn, N. Y.; Realth Associates Co., 162 Remsen street; one-story garage, 109x119; $18,000.

Brooklyn, N. Y.; Martin Garage Co., 4815 Third avenue; one-story garage, 100x100; $40,000.

Brooklyn, N. Y.; Cortelyou Building Co., 1181 Myrtle avenue; one-story public garage, 100x180; $20,000.

Brooklyn, N. Y.; Samuel Barach, 44 Court street; one-story garage, 85x113; $2500.

Brooklyn, N. Y.; Henry J. Nurick, 957 Broadway; two-story public garage, 100x100; $75,000.

Brooklyn, N. Y.; George W. Springstein, 1344 Jefferson avenue; one-story garage, 100x185; $25,000.

Brooklyn, N. Y.; Bessie Skolnick, 543 Greene avenue; one-story garage, 50x57; $10,000.

Brooklyn, N. Y.; Richard S. Hogar, 3407 Avenue L; one-story garage, 100x100; $20,000.

Brooklyn, N. Y.; Louis Lehman, 512 Eighth avenue; one-story garage, 20x100; $35,000.

Brooklyn, N. Y.; Lebona Realty Co., 44 Court street; one-story garage, 100x200; $54,000.

Brooklyn, N. Y.; Plant Brothers, 103 Adams street; one-story garage, 47x103.

Buffalo, N. Y.; William Schenter, care Joseph A. Brown, 778 Genesee street; one-story garage, 28x40; $2500.

Buffalo, N. Y.; Max Stouroff, 126 E. Seneca street; one-story public garage, 50x50 and 20x70; $6000.

Buffalo, N. Y.; C. K. Packing Co., 50 Depot street; one-story garage, 32x61; $3000.

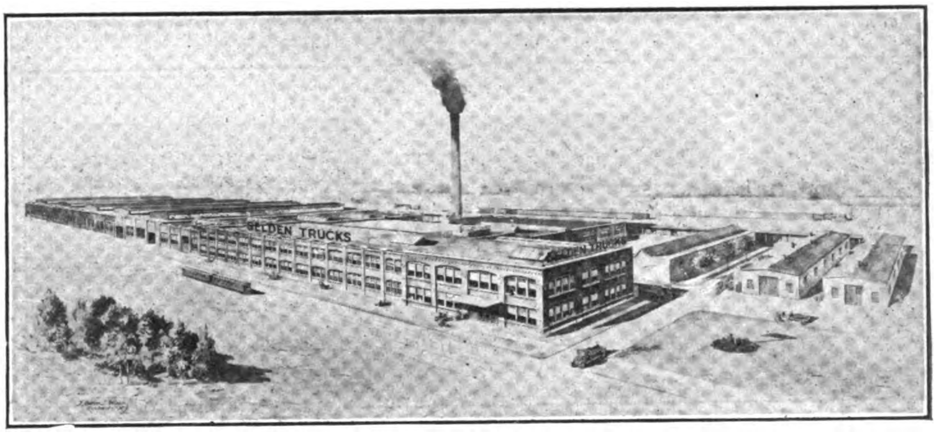
Forest Hills, L. I., N. Y.; W. E. Martin; one-story garage, 30x30; $2500.

Forest Hills, L. I., N. Y.; Sage Foundation Homes Co., 27 Greenway Terrace; one-story garage, 20x38; $20,000.

Long Island City, L. I., N. Y.; Louis Gold, 44 Court street, Brooklyn; one-story public garage, 100x100; $20,000.

Malone, N. Y.; Northern Garage Corporation, 18 Broadway, Saranac Lake, N. Y.; one-story garage, 50x160; $40,000.

New York, N. Y.; F. Bannerman; one-story garage at 137-53 W. 37th street; $15,000.



The Factory of the Selden Motor Vehicle Co., Rochester, N. Y., to Which a New Unit Was Recently Added to Assemble Army Trucks.

New York, N. Y.; Joseph Butterweiser; one-story garage, 92x160.

New York, N. Y.; Greenwich Associates; one-story garage, 35x40; at 108 Bank street; $9000.

New York, N. Y.; I. M. and B. Realty Co.; one-story garage, 99x200; $60,000

New York, N. Y.; A. Oppenheimer; one-story garage; 80,000.

New York, N. Y.; L. K. Prince; one-story garage, 75x92; at 37th street and 11th avenue; $10,000.

New York, N. Y.; J. M. Rosenmann; one-story garage, 100x142; at Whitlock avenue and Tiffany street.

New York, N. Y.; S. Stein; one-story garage, 45x100; $30,000.

New York, N. Y.; Samuel Williams; one-story garage, 100x100; at 62 W. 117th street; $35,000.

New York, N. Y.; L. & B. Construction Co., 700 Trinity avenue; one-story garage, 100x100; $15,000.

New York, N. Y.; Max Hoffman, 916 S. Boulevard; one-story garage, 100x104; $12,000.

New York, N. Y.; Lawrence W. Gallagher, 401 West 142nd street; one-story garage, 75x100; $8000.

New York, N. Y.; Lankan Realty Co., 601 W. 181st street; one-story garage, 125x145; $20,000.

Queens, L. I., N. Y.; Edward Hayden, 11 Classer street; one-story garage, 37x40; $2000.

Rochester, N. Y.; F. S. Booth, 602 St. Paul street; two-story garage, 32x50; $3000.

Rochester, N. Y.; Homer Strong, 301 State street; one-story garage, 22x40; $3500.

Rochester, N. Y.; James Caldwell, 145 Berkeley street; one-story garage, 20x96.

Syracuse, N. Y.; Mrs. Louis Eger, 2307 Lodi street; one-story garage; $3000.

Syracuse, N. Y.; John F. Welch; one-story public garage, 20x50.

Woodhaven, L. I., N. Y.; Henry Finkelstein, Rockaway Beach, L. I.; one-story garage, 114x200; $15,000.

Yonkers, N. Y.; Jacob Smith, 184 Warburton avenue; one-story garage, 23x40.

Raleigh, N. C.; John W. Evans Sons; three-story garage; $15,000.

Fargo, N. D.; S. F. Crabble, Court House; one-story public garage, 40x80.

Cleveland, O.; John Hampleman, 431 E. 143rd street; one-story garage, 60x60; $5500.

Cleveland, O.; H. W. Burton; one-story garage; $15,000.

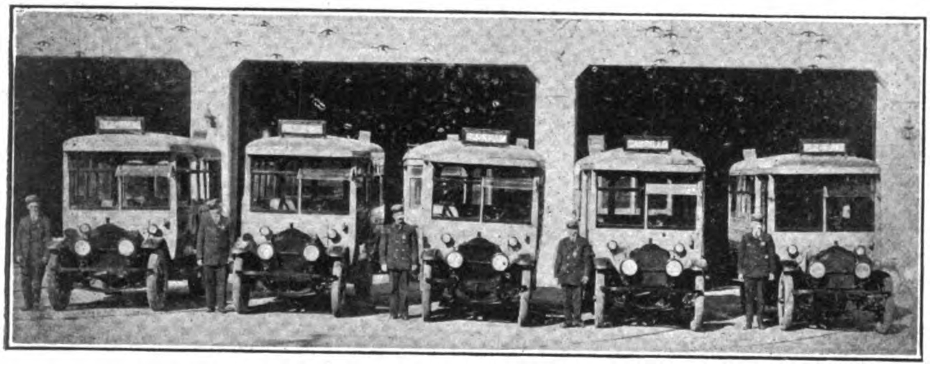
Bucyrus, O.; A. G. Flickenger; one-story garage, 36x56; $6000.

Cincinnati, O.; Frederick A. Schmidt Co.; one-story garage at 1016-18 Gilbert avenue; $35,000.

Dayton, O.; Citizens' Motor Car Co.; one-story garage; $80,000.

Lorain, O.; Dr. A. Grills, 658 Hamilton avenue; two-story private garage, 22x22; $2500.

Mansfield, O.; Fred C. Ackerman; one-story sales and service station, 50x85; $10,000.



Fleet of Five White Omnibuses, Seating 18 Passengers, Operated in San Francisco's Municipal Service.

Beaver, Okla.; Phelps Brothers; one-story garage, 50x140.

Enid, Okla.; M. E. Garber; two-story garage, 50x150; $20,000.

Oklahoma City, Okla.; D. R. Morris; one-story garage, 100x140; at 111 W. Third street.

Carlton, Ore.; George Carl; one-story garage, 100x160.

Portland, Ore.; Labbe Brothers; one-story garage, 50x100; $25,000.

Chester, Pa.; Charles M. Bloom, 1601 Walnut street, Philadelphia; one-story private garage, 20x39; $2000.

Houtzdale, Pa.; Varner & Pidgeon; two-story commercial garage, 60x150; $15,000.

Latrobe, Pa.; George Anderson Lumber Co.; one-story private garage, 40x60; $8000.

Norristown, Pa.; D. B. Martin & Co., 30th and Market streets, Philadelphia; one-story private garage, 50x150; $6000.

North Wales, Pa.; Daniel Tyson; one-story public garage, 48x187; $12,000.

Paxtang, Pa.; Lyon Scott, 17th and Briggs street; one-story garage, 22x22; $1550.

Pittsburgh, Pa.; F. Fornier, S. Main street and Wabash avenue; one-story auto accessories building; $2500.

Pittsburgh, Pa.; H. Samson; one-story garage, 91x218; $150,000.

Pittsburgh, Pa.; Harry Lippoch, care W. A. Thomas, Magee building; two-story commercial garage, 83x120; $50,000.

Pittsburgh, Pa.; L. P. Ashe, 7228 Idlewild street; two-story private garage; $2350.

Pittsbugh, Pa.; George E. Lorch & Bro.; 17th and Carson streets, south side; one-story private garage, 26x78; $8000.

Pittsburgh, Pa.; F. X. Behen, care Edward A. Roth, Berger building; one-story garage, 33x65.

Pittsburgh, Pa.; William G. Yost, 426 Excelsior street; one-story garage, 12x15; $1200.

Pittsburgh, Pa.; Joseph Clabrose; one-story garage, 20x21; $1800.

Philadelphia, Pa.; D. B. Martin Co., 20th and Market streets; one-story private garage, 50x150; $6000.

Philadelphia, Pa.; F. G. Ereisler, northeast corner Fifth and Chestnut streets; one-story commercial garage, 80x140.

Philadelphia, Pa.; Harry Drake, 3129 Allegheny avenue; one-story garage, 80x120; $15,000.

Philadelphia, Pa.; S. D. Milner, 1420 Chestnut street; one-story public garage, 23x80; $4000.

Philadelphia, Pa.; H. H. Wehmeyer, 509 W. Cumberland street; one-story public garage, 36x50; $5000.

Philadelphia, Pa; J. T. Clasby; one-story garage, 45x130; at American street and Clarkson avenue; $6000.

Philadelphia, Pa.; J. D. Fisher; one-story garage, 51x78; $8200.

Rosemont, Pa.; Mrs. Samuel Vanclaino; one-story private garage, 20x50.

Uniontown, Pa.; S. J. Morrow; one-story private garage, 20x20; $2500.

Woodlawn, Pa.; Mike Pesot; one-story garage, 22x27; $4000.

Anderson, S. C.; John E. Sadler; one-story garage, 40x110.

Hampton, S. C.; Hampton Hardware Co.; one-story garage, 60x80.

Howard, S. C.; Feller & Hanson; one-story garage, 70x108.

Sioux Falls, S. D.; J. M. Costello, 103 S. Prairie avenue; two-story auto warehouse, 44x140; $4000.

Nashville, Tenn.; J. W. Blair; one-story garage at 2601 West End avenue; $16,000.

Kaufman, Tex.; Emmett & Carlisle; one-story garage, 50x100; $10,000.

Plano, Tex.; Harrington Motor Co.; one-story garage, 53x208; $10,000.

Sterling City, Tex.; Benjamin Rawls; one-story brick and concrete garage; $6000.

Sulphur Springs, Tex.; Hopkins Motor Co.; one-story garage, 59x137; $14,000.

Vernall, Utah; Day and Night Garage Co.; one-story garage; $12,000.

Clarksburg, W. Va.; W. C. Osburn; one-story commercial garage, 62x70; $6500.

Waterville, Wash.; Waterville Hardware Co.; one-story garage, 70x100; $10,000.

Christiana, Wis.; District School Board, Jens Arnold R2 Stoughton, Wis.; one-story public garage, 31x36; $4000.

Manitowoc, Wis; W. F. Hagen Co.; one-story garage; $20,000.

Milwaukee, Wis.; P. E. Schaeger, 296 W. Water street; one-story garage, 22x37; $2500.

Milwaukee, Wis.; Paul O. Kapplin, 1145 12th avenue; one-story garage, 21x51; $3000.

Milwaukee, Wis.; L. Rapp, 1069 24th street; one-story garage, 20x28.

Milwaukee, Wis.; Emil Wilds, 1400 Richards street; one-story garage, 21x47; $1400.

Milwaukee, Wis.; Russel Hackson, 610 Shepard avenue; one-story garage, 22x23; $1000.

Milwaukee, Wis.; F. W. Androe, 739 34th street; two garages, 20x40; $2000.

Monroe, Wis.; Bear & Jaberg Co.; one-story garage, 70x100.

Stevens Point, Wis.; Gosse Auto Co.; one-story garage, 30x50, at 417½ Main street; $2500.

Stevens Point, Wis.; Appleton Auto Co.; one-story garage, 30x50.

CONTRACTS AWARDED.

Waterbury, Conn.; George S. Chatfield Co., 73 Canal street; one-story private garage, 40x50; for E. Perrault, 88 Canal street; $8000.

Chicago, Ill; F. La Plant, 22 W. 16th street, West Pullman, Ill.; one-story private garage; $3000.

Dundee, Ill.; W. S. Griffire; two-story garage and service building, 20x60; for H. Brey; $18,000.

Indianapolis, Ind.; G. E. Toner; one-story oil filling station, 20x20; for National Refining Co., Oliver and Harding streets; $2500.

Marion, Ind.; George W. Winger, 811 W. First street; one-story auto accessories and repair shop; $6000.

Marion, Ind.; Standard Oil Co.; one-story filling station; $4000.

Sigourney, Ia; G. E. Sietsinger; one-story filling station for Cedar Rapids Oil Co., Cedar Rapids, Ia.; $2000.

Vinton, Ia.; Stark & Co., Cedar Rapids, Ia.; one-story service station, 18x24; for Standard Oil Co., Davenport, Ia.

Kansas City, Mo.; Mosby-Goodrich Construction Co., 904 New York Life building; one-story garage, 50x134; for C. M. Jennings; $15,000.

Sikeston, Mo.; Standard Oil Co.; one-story filling station, 12x16; $2000.

Omaha, Neb.; George W. Stiles Construction Co., 617 Exchange building, Chicago; four-story garage and sales room, 88x136; for Nebraska Buick Auto Co., 1914 Farnam street; $175,000.

Jersey City, N. J.; A. Della, 119 Brunswick street; one-story garage, 25x100; for Antonio Leori, 327 Newark avenue; $4000.

Wilmington, N. C.; R. H. Brady; one-story brick vulcanizing plant, 44x136; for T. D. Piner; $10,000.

Chester, Pa.; Samuel Lax, 318 W. Second street; one-story private garage 23x30; for Mrs. Esther Seimmer, 318 West Second street; $2000.

Bethlehem, Pa.; George Heller, 119 New street; one-story private garage, 26x44; for Theodore Schug, 34 New street; $6000.

Pittsburgh, Pa.; Edward A. Wehr, Highland building; one-story private garage, 22x26; for Eugene Batchelor, Farmers Bank building; $3000.

Philadelphia, Pa.; Henry P. Schneider; one-story brick garage, 76.3x150; east side Broad street, north Cumberland; for Florence E. Hall; $25,000.

Philadelphia, Pa.; John F. Johnson; four one-story brick garages, each 12x16; at 600 to 606 Luray street; for Maroo Marks; $1000.

Philadelphia, Pa.; William Joyce; one-story brick garage, 29.6x20; at 4953 Rubican avenue; for Robert Burns; $1840.

Philadelphia, Pa.; W. C. Wright; one-story stone garage, 22x22; at 105 W. Upsal street; for Charles Atherton; $1600.

Philadelphia, Pa.; Conrey & Co., Inc.; one-story brick garage, 12x30; northwest corner Second and Luzerne streets; $750.

Philadelphia, Pa.; Thomas C. Trafford, 1613 Samson street; one-story garage, 100x100; $7500.

Philadelphia, Pa.; West & Co.; one-story brick garage, 11.4x10; at 1211 Allengrove street; for Edward L. Waterhouse; $750.

Philadelphia, Pa.; McBain & Hart, Inc.; one-story brick garage, 16x21.6; at 1425 Olney avenue; for Max Hexter; $550.

Philadelphia, Pa.; J. Y. Loux; one-story brick garage, 16.4x17; southeast corner fourth and Ruscomb streets; for August Schambacher; $825.

Philadelphia, Pa.; Anthony Mignoni; one and two-story brick garage, 15x30 and

30x37; southwest corner Ditman and Sheridan streets; $5000.

Philadelphia, Pa.; J. F. Packard; one-story brick garage, 15x20.9; at 5447 N. 6th street; $690.

Philadelphia, Pa.; M. H. -Brown; one-story brick garage, 15x16; northeast corner 18th and Wallace streets; for M. J. Coughlan; $520.

Philadelphia, Pa.; R. W. Struse; one-story brick garage, 30x25; north side Rector street, west Main street, Manayunk; for Imperial Woolen Co.; $2500.

Philadelphia, Pa.; John H. Cloak; one-story brick garage, 15x16; north side Lycoming street, east Marshall; $600.

Philadelphia, Pa.; Edward F. Judge; one-story brick garage, 20x60; east side Salmon street, north Cambria; for John McAlteer; $2500.

Philadelphia, Pa.; George H. Farrell; one-story stone garage, 30x75; southwest corner Cemetery avenue and Baltimore & Ohio Railroad; $800.

Philadelphia, Pa.; Alfred R. Swope; one-story brick garage, 17.10x54; at 4719 Daffield street; $600.

Philadelphia, Pa.; Frank I. Wintz; one-story brick garage, 18x34; at 1528 N. Camac street; for George Parker; $1900.

Philadelphia, Pa.; Philip Haibach Contracting Co.; one-story brick garage, 24x46.6; at 1329 E. Montgomery avenue; for P. F. Martin; $4000.

Philadelphia, Pa.; P. Robin, 14 one-story brick garages, each 12x20; at 1501, 23, 25, 27, 29, 31, 1506, 08, 14, 16 Widener place and 1507, 09, 15, 17 Nedro avenue; for I. Cofman; $4200.

Philadelphia, Pa.; John T. Conlin; one-story garage, 20x46; northwest corner Keyser and Logan streets; $1800.

Philadelphia, Pa.; I. Cohen; one-story brick garage, 75x200; at 1310 to 18 N. Fifth street; $14,000.

Philadelphia, Pa.; William Bryant; one-story brick garage, 32x50.6; at 934-36 League street; $2500.

Philadelphia, Pa.; J. D. Fisher; one-story brick garage, 16x18; northwest corner 62nd and Catharine streets; for William Bayliss; $650.

Philadelphia, Pa.; John S. Walter; one-story brick garage, 22x22.8; at 6154 Oxford street; for J. T. Hickey; $1800.

Philadelphia, Pa.; A. Forepaugh; one-story brick garage, 25x94.8; south side Pratt street, west Duffield; $1800.

Philadelphia, Pa.; Harry Hantman; one-story brick garage, 17x88; south side Courtland street, east 10th; for M. Durkin; $3500.

Philadelphia, Pa.; John P. Fallon; one-story brick garage, 80x112; southwest corner 40th street and Mantua avenue; for William Burnstein; $8500.

Philadelphia, Pa.; Barclay White & Co.; one-story brick garage, 38x120; at 2612-24 W. Huntington street; for F. M. Venzie; $10,000.

Philadelphia, Pa.; H. E. Gran Co.; one-story brick garage, 80x92; west side 21st street, north Glenwood avenue; for R. A. and J. J. Williams Co.; $6000.

Philadelphia, Pa.; Frank K. Stahl; one-story stone garage, 27x40; northwest corner Balbon street and Hunting Park avenue; for Eugene Ellwanger; $1775.

Philadelphia, Pa.; Dominick Iero; two-story brick garage and storage station, 16x31; at 153 S. Hicks street; for John Shea; $1250.

Philadelphia, Pa.; Percival M. Sax; one-story brick garage, 69.9x127; at 1204-10 Parrish street; for Edward Wolf; $15,300.

Philadelphia, Pa.; C. E. Lloyd, Jr.; one-story stone garage, 19.6x21.6; west side Seventh street, south 65th; for E. R. Perry; $1500.

Philadelphia, Pa.; W. E. Strock; one-story stone and frame garage, 17x21; north side Filmore street, east Loney; for William Weimar; $550.

Philadelphia, Pa.; S. A. Steinbach; one-story stone garage, 21x21; at 6812 Lincoln drive; for J. N. Mitchell; $12,000.

Philadelphia, Pa.; Frank K. Stahl; one-story brick garage, 14x20; at 6512 N. 21st street; for Clarence Flood; $500.

Philadelphia, Pa.; M. Marks; five one-story brick garages, each 16x20; at 601-5 to 11 Courtland street; $1500.

Philadelphia, Pa.; Kahm & Greenburg; two-story brick and stone garage and shop, 64x165; at 1641-43 North Broad street; $12,000.

Philadelphia, Pa.; H. Hope; one-story brick garage, 12x20; at 6405 N. 11th street; for L. Naudasher; $800.

Philadelphia, Pa.; H. B. Prettyman; one-story brick garage, 15x19; northeast corner Broad and Shunk streets; for M. Allman; $500.

Philadelphia, Pa.; E. E. Hollenback; one-story brick garage, 30x107; at 2440-42 Germantown avenue; for John McCaffrey; $5500.

Philadelphia, Pa.; Frank K. Stahl; one-story brick garage, 15x20; at 6414 N. 24th street; for George Sonnaday; $540.

Philadelphia, Pa.; F. A. Havens Co.; one-story brick garage, 13x47; at 924 Spring street, for city; $1520.

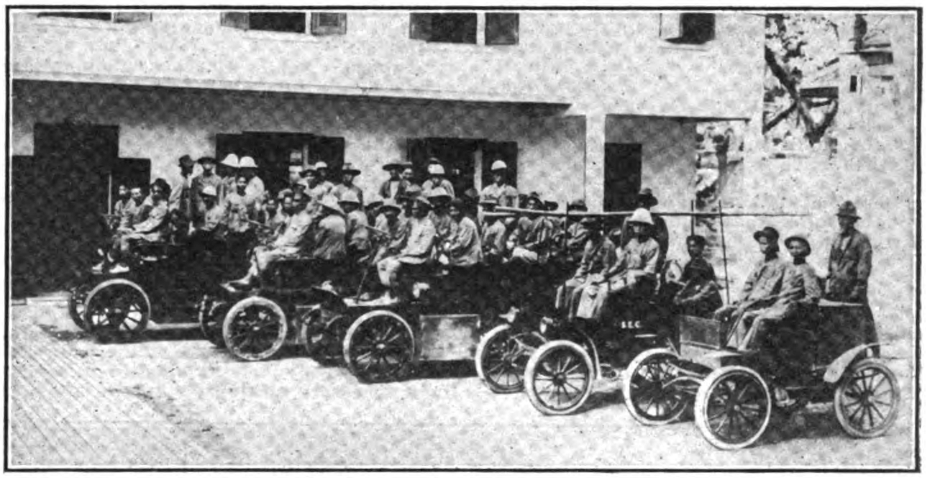
Philadelphia, Pa.; L. H. Cahan; one-story brick garage, 16x20; at 39 West Upsal street; for E. C. Emhardt.

Philadelphia, Pa.; Thomas Dugg; one-story brick garage, 49x57; southwest corner Jasper and Hilton streets; for W. H. Whiteman; $4700.

Philadelphia, Pa.; M. Moister & Co.; one-story iron on frame garage, 27x56; at 4116 Ogden street; for W. M. King; $1470.

Philadelphia, Pa.; Alfred James; two-story brick garage, 23.2x22.6; southeast corner 64th street and Church road; for Morris estate; $5000.

Waco, Tex.; J. F. Cason, 208 Bankers' Trust building; one-story brick automobile salesroom, 100x165; gravel roof, cement floor; for Pio Crespi; cost, without equipment, $20,000.



Fleet of Five Electric Vehicles Operated by the Siam Electricity Co., Bangkok, Siam, Two of Them Since 1904, for General Service.

TRADE INFORMATION EXCHANGE

A National Clearing House of the Trade's Needs for Manufacturers, Jobbers and Agents

COMMERCIAL CARS.

Cuero, Tex.; Cuero Buick Auto Co. is interested in commercial cars; selling price, $1000 from $2000.

SPECIAL OPPORTUNITY.

Reo de Janeiro, Brazil; T. W. Wright, 170, Avenida Rio Branco, would like to get in touch with all accessory dealers, manufacturers of novelties, catalogues, prices and discounts.

Sao Paulo, Brazil; W. T. Wright, director Sociedade Industrial e de Automovies, "Bom Retiro," is anxious to get in touch with accessory dealers manufacturers of novelties, catalogues, prices and discounts.

Habana, Cuba; Havana Commission Co., attention of Glen E. Moe, is desirous of any information regarding good, quick selling accessories for Ford cars.

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Harrison, Ark.; W. P. Glass is in the market for bodies, bumpers, chains, fire extinguishers, gasoline, locks, mechanical starters, shock absorbers.

Frederick, Md.; Automotive Tractor Co. is interested in clips, fans, washers, waste and wheels.

Elizabeth, N. J.; Crescent Truck Co., 347 First avenue, would like to secure axles, banding, batteries, bearings, bodies (dump), bolts, brakes, caps, castings, chains, charging apparatus, collars, cones, connectors, controllers, couplings, cranes, cups, drills, forgings, frames, gaskets, gears, greases, joints, knuckles, machinery, metal parts, nuts, oils, paints, pinions, pins, punches, reamers, rectifiers, rheostats, rods, screws, shafting, springs, steel, steering wheels, tape, terminals, tires, tubing, wheels, wire.

Newark, N. J.; New Jersey Tire and Rubber Co., Inc., wishes to obtain cements, cloth packing, printed matter, rubber, tape. The products are to be used for tires.

Columbus, O.; Lawrence Motor Co. is in the market for anvils, asbestos, bearings, belts, bolts, brushes, cable, charging apparatus, drills, gaskets, grinders, greases, hammers, horns, hose, hydrometers, jacks, odometers, oils, pullers, punches, recording time clocks, shims, solder, switchboards, switches, valves, vises, voltmeters, windshields, wrenches and special bodies for commercial cars. The goods are to be used for service and repairs.

Cuero, Tex.; Cuero Buick Auto Co. wishes to obtain air compressors, air pumps, axles, batteries, bearings, bodies, bulbs, bumpers, cable, carburetors, cases, castings, celluloid, cements, chains, charging apparatus, cloth, commutators, curtains, cushions, dynamometers, emblems, fenders, fire extinguishers, forgings, glass, goggles, graphite, greases, hoists, horns, hose, hydrometers, indicators, lathes, leather, lubricators, oils, paints, pistons, platinum, plugs, pumps, radiators, reamers, recording time clocks, seats, shafting, shock absorbers, speedometers, springs, steering wheels, storage systems, switchbards, switches, tire accessories, tools, tops and parts, transmissions, trimmings, upholstery, vulcanizers, washstands, waste, whistles, windshields and special bodies for passenger cars.

NEW BUSINESS CONCERNS AND CHANGES OF NAMES.

The Month's Record of Transfer of Ownerships and Opening of Garages, Agencies, Branches, Service Stations and Repair Shops.

RECENT TRANSFERS OF BUSINESS OWNERSHIPS.

Brea, Cal.; Forrest Hurst has bought the Brea Garage.

Garden Grove, Cal.; D. B. Henry has purchased the Garden Grove Garage.

Garden Grove, Cal.; Parson's Auto Repair Shop has installed a complete vulcanizing plant.

Huntington Park, Cal.; O. H. Haltquist has purchased the garage at 145 South Pacific Boulevard.

La Habra, Cal.; Wise & Gibbs have bought the La Habra Garage.

Monrovia, Cal.; R. C. Baldridge has bought the interest of H. M. McPheeters in the Exide Battery Sales and Service Station.

Redlands, Cal.; Chauncey H. Clem has bought the garage building at 117 West Citrus avenue, where he has installed the Cadillac, Paige and Chevrolet cars.

Quincy, Ill.; E. L. Fraser, formerly with Potter-Vaughn, has purchased the Reliable Auto Repair Shop, 1024-26 Hampshire street.

Indianapolis, Ind.; The National Motor Sales Co. has changed its name to the B. M. Wylie Automobile Co.

Red Wing, Minn.; The Overland Garage has taken the name of the Kennedy Service Garage.

Westbrook, Minn.; Peterson & Ludvigson have sold their garage and machinery to Grant Ross.

Windom, Minn.; Frank Gahlman has bought the vulcanizing plant which was formerly owned by George Dahl.

Phillipsburg, Mont.; E. J. Arden has bought the garage belonging to Richard Miles.

Auburn, Neb.; Clarence Connor has bought an interest in the Auburn Tire and Repair Co.

Clarks, Neb.; Frank Muchow has bought the garage of J. L. Sweibel.

Lincoln, Neb.; Willis Pickering has bought the interest of his brother, D. R. Pickering, in the Pickering Brothers Garage.

Stanton, Neb.; Stallman & Patterson have bought the garage and salesroom of A. V. Johnson.

Syracuse, Neb.; J. H. Eaton and F. R. Strong have bought the Stover Garage.

Winston-Salem, N. C.; Ralph White and E. C. Reece have purchased the Auto Exchange. They are to operate a service and accessory station.

Parade in Cincinnati, O., of First Liberty Trucks to Leave the Factory of the United States Motor Truck Company.

Muncie, Ind.; The Blackford Auto Co. has purchased the Keystone garage at the corner of Jefferson street.

South Bend, Ind.; The Overland-South Bend Co. has changed its name to the E. A. Bennett-Overland Co. B. A. Bennett is president.

Dayton, Ia.; The Strandburg Auto Co. has succeeded the Freeborn Auto Co.

Eldon, Ia.; H. R. Knight has sold his garage to Glen Wilson.

Wichita, Kan.; The South End Garage has been bought by E. C. Stuckey. The garage is located at 1147 South Lawrence avenue.

Boston, Mass.; Proctor Fisher has purchased the entire interests in the firm of Fisher-Wallis, Inc. The company will continue to do business in the building at 595-601 Newbury street. The sales, service and used car departments will also be conducted.

Kalamazoo, Mich.; The Baumann Motor Co. has taken over the business of the Cadillac Motor Sales Co. The company will handle a complete line of Cadillac cars.

Minneapolis, Minn.; D. T. Farnum has bought the Horrell V. Mastin Garage at 10 East 18th street.

Centre, N. D.; L. Barchenger has bought the garage business from Charles Herman.

Portland, Ore.; The Lancaster Tire and Supply Co. has changed its name to the Amazon Tire Supply Co.

Philadelphia, Pa.; The Crown Auto Painting Co. has leased the three-story building at 1406 Vine street, which contains 20,000 square feet of floor space.

Philadelphia, Pa.; M. J. Scott has purchased the brick garage at 5123 Sansom street.

Estelline, S. D.; Ed. Horst has bought the interest of Christ Reichel in the Horst Garage.

Lake Andes, S. D.; The Blaha Garage has bought the garage formerly belonging to the Miller Brothers and installed a repair shop.

Pierpont, S. D.; F. E. Vickers has bought the Pierpont Garage from Ed. Tobey.

Fort Worth, Tex.; De Luxe Motor Co. has changed its name to the Mitchell Motor Co. and will continue doing business.

Barneveld, Wis.; Spencer Harris has sold the Barneveld Auto Co. to Melvin Peterson.

Hartland, Wis.; B. G. Schnieder and H. E. Salisch have bought the garage which was formerly owned by E. A. Shinner.

Portage, Wis.; Max Steckel has bought the interest of John J. Robinson in the Portage Hotel Garage. The name of the new garage will be York-Steckel.

St. Croix Falls, Wis.; The Eureka Centre Garage has been sold by Stone Nelson to N. C. Nelson & Sons, who are to conduct the business.

Sun Prairie, Wis.; The A. Ulmer Garage has been sold to M. J. McGowan.

AGENCIES, DEALERS AND SERVICE STATIONS.

Anaheim, Cal.; George L. Boothe has opened a Paige sales room and service station.

La Verne, Cal.; The Motor Inn Garage has installed a complete vulcanizing plant.

Redlands, Cal.; Charles H. Stone has opened a tire, accessory and vulcanizing shop at 13 State street. It is to be called the Racine Tire Service Co.

Bridgeport, Conn.; J. A. Morris has opened a sales branch and service station at 673 Connecticut avenue.

Chicago, Ill.; The Winther Truck Co. has opened truck sales and show room at 2017 Michigan avenue.

Evanston, Ill.; The Central Motor Car Co. has taken the agency for Mason tires.

Rochelle, Ill.; Dexter Stocking has opened a battery service station.

Indianapolis, Ind.; The Rubber Products Co. has opened a store at 229-231 North Pennsylvania street. The company will deal exclusively in "factory seconds."

Sidney, Ia.; The Shannon Auto Co. has opened. Sidney Shannon is at the head and Robert Albertson is to be associated with Shannon.

Louisville, Ky.; The Enbry-Rapier Tire Co. has established an agency at 908 South Third street.

Louisville, Ky.; Rommel-Gosset Co. has established a storage battery station. W. A. Gosset and John D. Rommel will direct the concern.

Worcester, Mass.; Henry Z. Duke has taken the agency for Guaranty trucks and established the Duke Motor Co. at 708 Main street.

Portland, Mich.; B. W. Jackson has bought the garage and accessory business formerly owned by John Miner.

St. Louis, Mo.; Edward A. Craig and Warren D. Craig have opened the Craig Auto Tire Co. at 2320 South Jefferson avenue. The company handles the Goodrich tires and tubes.

Poplar, Mont.; The Stewart-Hopke Motor Co. has organized to handle the sales and distribution of the Dodge Brothers automobile.

Elizabeth City, N. C.; The Pasquotank Motor Co. has opened and plans to handle the Studebaker car and run a garage and accessory shop.

Shelby, N. C.; The Babington Foundry has installed a tire vulcanizing department.

Cleveland, O.; The Gates Sales Co., 1837 E. 13th street, has taken the agency for International motor trucks.

Philadelphia, Pa.; The Terwilliger Equipment Co., 2013 Market street, has been made distributor of Winther trucks. H. J. Smith has been placed in charge of the line.

Hoquiam, Wash.; Storage Battery Service Co. has been opened by G. A. Moon.

Colby, Wis.; L. W. Frane has opened a tire and vulcanizing shop and battery recharging and service station.

Fond du Lac, Wis.; The Foell Auto Sales Co., 24 East Division street, has been appointed Nash dealer.

NEW BUSINESS LOCATIONS, REMOVALS AND IMPROVEMENTS.

Birmingham, Ala.; The Motor Sales Corporation has moved into new quarters at 20th street and Avenue D. Sales rooms have been opened for Maxwell and Stearns cars and a service station will be maintained for each.

Phoenix, Ariz.; The Auto Consignment has opened quarters at 514 North Central avenue.

Anaheim, Cal.; A. B. Gilbert has remodeled his sales room in the Central Garage. He is the dealer for the Buick car.

Santa Ana, Cal.; Kellogg & Meinier have leased and remodeled the building at 424 Fourth street and will handle the Nash car.

Santa Ana, Cal.; The Santa Ana Rubber Co. has moved to new quarters at Fifth and Birch.

Santa Ana, Cal.; A. J. Swoffer has moved to Dick's Garage.

Vernon, Cal.; W. J. Hamilton has remodeled the Vernon Garage.

Bridgeport, Conn.; John C. Mattice has enlarged his show room and garage at 230 Stradford avenue. He is the distributor of the Oakland car.

New Haven, Conn.; The Packard Motor Car Co. has leased quarters on York street. They were formerly the quarters occupied by the George B. Wuesfefeld Co.

Englewood, Ill.; The Englewood-Overland Co. is remodeling its sales room.

Des Moines, Ia.; The Consigny Motor Truck Co. has moved into new quarters at 1314 Locust street.

Louisville, Ky.; The Ex-L Auto Tire Co. has moved to its new store at 668 South Third street.

Escanaba, Mich.; L. K. Edwards has moved into his garage on Ludington and Wolcott streets. It is 135 by 50 feet in size with a display room fronting on Ludington street. Has the agency for Ford cars and Fordson tractors and has repair stocks and accessories for these vehicles in stock at all times.

Conrad, Mont.; The City Garage has been enlarged and remodeled. It is operated by Colvin & Gregson on Front street.

Lincoln, Neb.; The Ulmer-Frost Co. has moved into its new building at 18th and O streets. This is two stories and has 25,000 square feet of floor space.

Rochester, N. Y.; The Franklin Motor Car Co. has moved its sales room from 87 East avenue to 19 Scio street.

Milton, N. C.; The Crowell Auto Co. has moved into its new modern garage. It contains show room, repair department and store room.

Butte, Mont.; Consumers' Auto Co. are building an addition to their garage.

Cleveland, O.; The Perfection Auto Co. has moved into new quarters in the Yates building in Lakeside avenue, near West Sixth street. The company was formerly located at 213 Superior avenue.

Columbus, O.; The Campbell-Gilchrist Co. has taken the Nash agency and has moved its Marmon and Empire establishment to 269 East Broad street.

Oklahoma City, Okla.; The Standard Tire and Accessory Co. has moved to 9 North Dewey street.

Philadelphia, Pa.; Hanwaring & Goodman have moved to larger quarters at 1517 North 59th street.

Sioux Falls, S. D.; The Hahn-Jonas has moved into new quarters at Ninth and Dakota avenues. The new building is two stories high and of modern, fireproof construction. The company distributes the Lexington, Cadillac and Harroun cars.

Dallas, Tex.; The Automobile Tire Co. has moved to a new location at 2033 Commerce street.

Norfolk, Va.; The J. R. Callum Co. has moved to new quarters in the Texas building at Granby street and Olney road. The company has a filling station and complete accessory store.

Chehallis, Wash.; H. P. Quick Auto Co. is having an addition erected to the building.

Algoma, Wis.; The Hancy Gasper-White Co. is building an addition to the rear of its garage on East Steele street. The addition will increase the size of the service room.

West Allis, Wis.; Menningen & Karth are erecting an addition to their garage.

FACTORIES, GARAGES AND REPAIR SHOPS.

Phoenix, Ariz.; F. L. Hart is building a new garage.

Monrovia, Cal.; E. F. Roy has opened a tire repair shop on South Myrtle avenue.

Ontario, Cal.; The Drow Carriage Co. is erecting a brick building to be used as a machine and repair shop for tractors. The company is the dealer for the Kleiber truck and I. H. C. tractor.

Sterling, Col.; L. Spelts and J. T. McShane are planning to build a large garage at the corner of Main and Fourth streets.

Bridgeport, Conn.; J. Lebas and I. Nichtauser have opened a vulcanizing, repair and accessories shop at 2063 Fairfield avenue. It will be known as the Lebas Service Station.

Dixon, Ill.; Chiverton Brothers are building a large modern two-story garage on North Galena avenue. It is to be 53x98 feet and cost $14,000.

Highland, Ill.; Park-Leuer Brothers have opened their new garage on North Green Bay road and Glenview avenue. It has a capacity for 25 cars and is fully equipped with all modern conveniences.

Kewanee, Ill.; The Crown Garage has opened in the Merrit building on North Chestnut street, which was formerly occupied by the Maxwell Garage.

Peotone, Ill.; E. W. Backur and Ray Adams have rented the Barnhart building and opened a garage and repair shop.

Saderleo, Ill.; Ernest Riefstack has rented the building just east of the Holl store for a garage.

Saybrook, Ill.; J. E. Wyckoff is rebuilding his garage. The front rooms are to be used for offices, the rear and upstairs rooms for storage purposes.

Warsaw, Ind.; The Polk Garage is being erected at the corner of Lake and Market streets.

Dumont, Ia.; N. E. Finn has built a new garage.

Harlan, Ia.; Harry Jansen has opened a garage on Main street.

Hull, Ia.; John Vant Hull has opened a garage in the building formerly occupied by John Smits.

Iowa Falls, Ia.; A. C. Cuttings has opened an automobile repair shop in the building opposite the City Hall.

Iowa City, Ia.; The Iowa City Auto Radiator Repair Shop has been established at 23 East College street by Martin Gerber.

Moorhead, Ia.; Wood & Boc are erecting a new garage, 50 by 80 feet, on the east side of Main strtet.

Spencer, Ia.; Cheney & Trunbull Tire Co. are erecting a garage.

Baxter Springs, Kan.; Nicholas & Branstetter are erecting a garage.

Eureka, Kan.; J. C. Newman has opened a tire shop.

Hutchinson, Kan.; J. M. Vreem has opened a tire shop.

Macksbille, Kan.; Roy Harman has opened a repair shop.

Solomon, Kan.; V. J. Elwick has opened a vulcanizing shop.

Minden, La.; The Minden Auto Co. is to build a new brick and concrete garage. It is agent for Oldsmobile, Franklin, Oakland and Maxwell cars and Armleder trucks. B. F. Griffin is president of the company.

New Orleans, La.; The Demack Motor Car Co. is erecting a modern two-story structure at Lee Circle and Howard avenue.

Blissfield, Mich.; W. N. Gobel has opened a tire shop.

Big Sandy, Mont.; Black & Son are erecting a new garage near the Montana hotel.

Dodge, Neb.; J. E. Beacon has opened a repair shop.

Loop City, Neb.; L. H. Spahr has opened a repair shop.

Tilden, Neb.; A. E. Hannen has opened a tire repair shop.

Wayne, Neb.; C. R. Glenn has opened a tire repair shop.

West Point, Neb.; W. C. Cage has opened an accessories store and tire repair shop.

Wymore, Neb.; B. Nelson has opened a repair shop.

Long Island City, N. Y.; The Transport Service, Inc., is to erect a garage and service station at the northeast corner of Harris avenue and Sherman street.

Charlotte, N. C.; The Dowling Motor Co. is erecting a new home at 234 North Tyron street. The company deals in the Pierce-Arrow, Nash, Lexington and Elgin cars.

Winston-Salem, N. C.; The Universal Auto Co. is building a new modern concrete garage.

Roslyn, N. D.; S. E. Swanson and J. A. Storsteer are building a new garage to be 44 by 70 feet. It will be built of brick, modern and fireproof.

Mt. Blanchard, O.; O. S. Bell and Dr. W. A. Fahl have started to build a new garage on Main street.

Okmulgee, Okla.; G. M. Carter is building a garage.

Tecumseh, Okla.; John Hicks has bought the Ideal Garage, formerly owned by Pallard & Miller.

Portland, Ore.; R. F. Patterson has built a new modern garage.

Merriman, Pa.; The Widergren Garage has been completed. The main building is 92 by 140 feet, one-half of which is two stories high with basement. The first floor is occupied with a show room, adjoining which are offices and rest room. The repair shop, storage battery room and storage room are in the second floor.

Philadelphia, Pa.; Kahn & Greenberg, 1641 North Broad street, is erecting a new garage.

Philadelphia, Pa.; H. O'Neil, 1808 Pearl street, is building a new garage.

Philadelphia, Pa.; J. F. Packard, 5447 North Sixth street, is building a garage.

Philadelphia, Pa.; Edwin Wold, 1204 Parrish street, is building a new garage.

Providence, R. I.; The Narragansett Motors Co., 163 Broad street, has taken the agency for Garford trucks and established complete service and parts departments.

Greenville, S. C.; Mauldin & Edwards have opened one of the finest garages in the state. The building is 100 by 102 feet and two stories high.

Walterboro, S. C.; Laurence Utsey is building a new garage.

Cranbury, Tex.; Keith & Hudson are building a new garage.

Kosse, Tex.; J. H. Harper & Son are erecting a new garage.

Salt Lake City, Utah; The American Fork Garage has opened. L. B. Mulvey is the president.

Bremerton, Wash.; Stebick Motor Co. is erecting a new garage.

Spokane, Wash.; The Griffith Brothers have opened a garage in the building which was formerly occupied by Engel & Grimsrud.

Tacoma, Wash.; H. Dadisman has opened a repair shop at 8224 Pacific avenue.

Colby, Wis.; L. W. Frane has opened a shop which has been fitted with all modern conveniences for the repair of automobiles.

Gillet, Wis.; The B. Bender Garage building on Railroad street has been completed and is now ready for occupancy.

Milwaukee, Wis.; Emil Bettinger is building the new garage on Montrose avenue. It is to be 45 by 100 feet in dimension, one story high and of brick and steel construction.

Milwaukee, Wis.; Emil Wilde has completed a garage at 829 Second street. It is of modern construction and contains five compartments.

Tomah, Wis.; Carl Hanson is erecting a new garage.

Securities and General Materials Markets

Automobile Securities Quotations

	May 9 Bid	May 9 Asked	June 6 Bid	June 6 Asked
Ajax Rubber Co	54	58	57	60
J. I. Case, T. M. Co., pfd	84	86	81	85
Chalmers Motor Co., com	5½	8	4½	5½
Chalmers Motor Co., pfd	30	40	30	40
Chandler Motor Co	71	80	82	82
Chevrolet Motor Co	119	123	126	130
Fisher Body Corp., com	33	35	30	35
Fisher Body Corp., pfd	82	87	83	87
Fisk Rubber Co., com	50	53	50	55
Fisk Rubber Co., 1st pfd	103	103	97	102
Fisk Rubber Co., 2nd pfd	70	75	70	75
Firestone Tire & Rubber Co., com	93	96	90	92
Firestone Tire & Rubber Co., pfd	94	96	93	95
General Motors Co., com	115	117	117	119
General Motors Co., pfd	78¾	79½	81	82
B. F. Goodrich Co., com	43	44½	42	44
B. F. Goodrich Co., pfd	95	100	99	100
Firestone Tire & Rubber Co., com	93	96	90	92
Goodyear Tire & Rubber Co., pfd	96	98	95	97
Grant Motor Car Corp	3¼	4¼	2½	3¼
Hupp Motor Car Corp., com	2¾	2½	2¾	3¼
Hupp Motor Car Corp., pfd	79	85	78	85
International Motor Co., com	22	25	25	30
International Motor Co., 1st pfd	50	58	54	58
International Motor Co., 2nd pfd	23	28	33	40
Kelly-Springfield Tire Co., com	41	43	43	46
Kelly-Springfield Tire Co., 1st pfd	79	85	76	87
Lee Rubber and Tire Corp	14	15	16	17
Maxwell Motor Co., Inc., com	24¾	25	25	26
Maxwell Motor Co., Inc., 1st pfd	52	54	52	54
Maxwell Motor Co., Inc., 2nd pfd	18	21	18	19
Miller Rubber Co., com	103	105	100	102
Miller Rubber Co., pfd	95	97	93	95
Packard Motor Car Co., com	95	105	107	112
Packard Motor Car Co., pfd	89	92	93	96
Paige-Detroit Motor Car Co	17	18	17	18
Peerless Truck Car Corp	12	14	13	17
Portage Rubber Co., com	107	109	102	105
Reo Motor Car Co	16	..	13	15
Saxon Motor Car Co	7	9	7	9
Standard Motor Construction Co	12	14	12	14
Standard Parts Co	56	58	..	..
Stewart Corp., com	36	37	..	..
Stewart-Warner Speed Corp	..	..	54	55
Studebaker Corp., com	..	..	40	41
Studebaker Corp., pfd	75	100	75	95
Swinehart Tire & Rubber Co	26	30	38	42
United Motors Corp	24	24½	25	27
U. S. Rubber Co., com	56	57	56	57½
U. S. Rubber Co., pfd	102½	104½	102	103
White Motor Co	41	42	40	42
Willys-Overland Co., com	17¼	18	18	19
Willys-Overland Co., pfd	79	82	79	82

General Market Prices

	May 13	June 12
Iron, foundry, 1 X ton	34.50	34.50
Iron, foundry, 2 X ton	33.50	33.50
Iron, Bessemer, ton	33.50	35.20
Steel, Bessemer, ton	47.00	47.50
Copper, 100 lbs., electric	23½	23½
Lead, 100 lbs	7	7¼
Antimony	13⅛	12⅞
Petroleum, Kan., cr., bbl	2.25	2.25
Petroleum, Pa., cr., bbl	4.00	4.00
Linseed oil, raw	1.55	1.56
Lard oil, prime	2.80	2.25
Fish oil, Menhaden, br	1.50	1.10
Cottonseed oil, bbl	....	20.00
Silk, raw, Japan	7.50	7.20
Rubber, fine, up-river, Para	68	68
Tire scrap	5¼	5½
Steel, open hearth, ton	44.50	47.50

DOMESTIC CRUDE OIL PRICES.

The prices of crude petroleum at the wells during the middle of the month of June, were:

Pennsylvania dark	$4.00	Caddo, La., 38°	$2.25
Mercer black	2.23	Caddo, La., heavy	1.25
Cabell	2.77	Healdton	1.45
New Castle	2.10	Moran	2.25
Corning	2.85	De Soto	2.15
Wooster	2.68	Strawn	2.25
North Lima	2.38	Thrall	2.25
South Lima	2.38	Crichton	1.40
Indiana	2.28	Canada	2.45
Princeton	2.42	Cal., 37 grav	1.33
Somerset 32°	2.60	Goose Creek	1.35
Ragland	1.25	Humble	1.35
Illinois above 30°	2.42	Jennings	1.35
Kan. & Okla	2.25	Markham	1.35
Plymouth	2.33	Sour Lake	1.35
Corsicana light	2.25	Vinton	1.35
Corsicana heavy	1.30	Grass Creek	1.70
Electra	2.25	Elk Basin	1.85
Henrietta	2.25	Big Muddy	1.40

Naphtha.

	10-gal. drums Under 100 cases	10-gal. drums 100 cases and over
Benzine, 59-62°	45½	45
Stove	45¾	45¼
Auto, 68-72°	51¼	50¾
Naphtha, 73-76°	55¼	54¾

	In cans and cases Under 100	In cans and cases 100-199	In cans and cases 200-299
Naphtha	....	....	....
Benzine, 59-62°	33.46	33.15	32.96
73 a 76°	43.15	42.95	42.65
Stove	33.65	33.40	33.15
Auto, 68-72°	38.55	38.45	38.35

NEW YORK CITY PRICES.

New York City prices for petroleum and its products were:

Petroleum.

Crude, barrels, a gallon	17	Fuel, 31°	15
Refined, barrels	18	Fuel, 34°	15½
Tank wagons delivery	11		

Naphtha.

Garages	24	V. M. & P. deod., in steel	23
Consumers (steel barrels)	26	V. M. & P. deod., in wood	23
Consumers (wood barerls)	30		

Gasoline.

Gas machine, steel	41	68-72° steel	30
72-76°	32	68-72° wood	36
72-76° wood	39	70-72° wood	37

Foreign Trade Opportunities

(Address Bureau of Foreign and Domestic Commerce, Washington, D. C., Giving Number, Which Will Forward Correspondence, Unless Otherwise Stated.)

27,046—A firm in South Africa desires to secure an agency for the sale of agricultural implements, automobiles and accessories, tires and tubes, and electrical specialties. Quotations may be made f. o. b. most convenient port. Correspondence: English. References.

DIFFICULTY OF SENDING CATALOGUES TO RUSSIA.

Catalogues can be sent to Russia at present only by the Pacific route, and the transportation difficulties between Vladivostok and European Russia are so great that delivery of mail to Moscow by this route is most uncertain. The demand for American catalogues and American goods is so urgent, however, that it will be advisable to send the catalogues in large numbers as soon as the avenues of communication reopen.

The Duty of the Employer in the Reconstruction of the Crippled Soldier

By **DOUGLAS C. McMURTRIE,**
Director Red Cross Institute for Crippled and Disabled Men, New York City.

We must count on the return from the front of thousands of crippled soldiers. We must plan to give them on their return the best possible chance for the future.

Dependence cannot be placed on monetary compensation in the form of a pension, for in the past the pension system has proved a distinct failure in so far as constructive ends are involved. The pension has never been enough to support in decency the average disabled soldier, but it has been just large enough to act as an incentive to idleness and semi-dependence on relatives or friends.

The only compensation of real value for physical disability is rehabilitation for self-support. Make a man again capable of earning his own living and the chief burden of his handicap drops away. Occupation is, further, the only means for making him happy and contented.

Soon after the outbreak of hostilies the European countries began the establishment of vocational training schools for the rehabilitation of disabled soldiers. They had both the humanitarian aim of restoring crippled men to the greatest possible degree and the economic aim of sparing the community the burden of unproductivity on the part of thousands of its best citizens. The movement had its inception with Mayor Edouard Herriot of the city of Lyons, France, who found it difficult to reconcile the desperate need for labor in the factories and munition works while men who had lost an arm or a leg, but were otherwise strong and well, were idling their time in the public squares. He therefore induced the municipal council to open an industrial school for war cripples, which has proved the example and inspiration for hundreds of similar schools since founded throughout France, Italy, Germany, Great Britain and Canada.

Physical Handicaps Overcome.

The disability of some crippled soldiers is no bar to returning to their former trade, but the injuries of many disqualify them from pursuing again their past occupation. The schools of training prepare these men for some work in which their physical handicap will not materially interfere with their production.

The education of the adult is made up largely of his working experience. The ground work of training in his past occupation must under no circumstances be abandoned. The new trade must be related to the former one or be, perhaps, an extension or specialization of it. For example, a man who had done manual work in the building trades may by instruction in architectural drafting and the interpretation of plans be fitted for a foreman's job, in which the lack of an arm would not prove a serious handicap. A train man who had lost a leg might wisely be prepared as a telegrapher, so that he could go back to railroad work, with the practise of which he is already familiar.

Whatever training is given must be thorough, for an adult cannot be sent out to employment on the same basis as a boy apprentice. He must be adequately prepared for the work he is to undertake.

The one-armed soldier is equipped with working appliances which have supplanted the old familiar artificial limb. The new appliances are designed with a practical aim only in view; they vary according to the trade in which the individual is to engage. For example, the appliance for a machinist would be quite different from that with which a wood turner would be provided. Some appliances have attached to the stump a chuck in which various tools or hooks can interchangeably be held. The wearer uses these devices only while at work; for evenings and holidays he is provided with a "dress arm," which is made in imitation of the lost natural member.

An important factor in the success of re-educational work is an early start, so that the disabled man shall have no chance to go out unemployed into the community. In even a short period of exposure to the sentimental sympathy of family and friends, his "will to work" is so broken down that it becomes difficult again to restore him to a stand of independence and ambition. For this reason, therefore, the plan for his future is made at as early a date as his physical condition admits, and training is actually under way before the patient is out of the hospital.

Employee's Responsibility.

In the readjustment of the crippled soldier to civilian life, his placement in employment is a matter of the greatest moment. In this field the employer has a very definite responsibility.

But the employer's duty is not entirely obvious. It is, on the contrary, almost diametrically opposite to what one might superficially infer it to be. The duty is not to "take care of" from patriotic motives a given number of disabled men, finding for them any odd jobs which are available, and putting the ex-soldiers in them without much regard to whether they can earn the wages paid or not.

Yet this method is all too common. A local committee of employers will deliberate about as follows: "Here are a dozen crippled soldiers for whom we must find jobs. Jones, you have a large factory; you should be able to take care of six of them. Brown, can you not find places for four of them in your warehouse? And Smith, you ought to place at least a couple in your store."

Such a procedure cannot have other than pernicious results. In the first years of war the spirit of patriotism runs high, but experience has shown that men placed on this basis alone find themselves out of a job after the war has been over several years, or in fact, after it has been in progress for a considerable period of time.

A second weakness in this method is that a man who is patronized by giving him a charity job, comes to expect as a right such semi-gratuitous support. Such a situation breaks down rather than builds up character, and makes the man progressively a weaker rather than a stronger member of the community. We must not do our returned men such injury.

Should Consider Man's Future.

The third difficulty is that such a system does not take into account the man's future. Casual placement means employment either in a make-shift job as watchman or elevator operator, such as we should certainly not offer our disabled man except as a last resort—or in a job beyond the man, one in which, on the cold-blooded considerations of product and wages, he cannot hold his own. Jobs of the first type have for the worker a future of monotony and discouragement. Jobs of the second type are frequently disastrous, for in them a man, instead of becoming steadily more competent and building up confidence in himself, stands still as regards improvement and loses confidence every day. When he is dropped or goes to some other employment the job will have had for him no permanent benefit.

Twelve men sent to 12 jobs may all be seriously misplaced, while the same 12 placed with thought and wisdom and differently assigned to the same 12 jobs may be ideally located. If normal workers require expert and careful placement, crippled candidates for employment require it even more.

The positive aspect of the employer's duty is to find for the disabled man a constructive job which he can hold on the basis of competency alone. In such a job he can be self-respected, be happy and look forward to a future. This is the definite patriotic duty. It is not so easy of execution as telling a superintendent to take care of four men, but there is infinitely more satisfaction to the employer in the results, and infinitely greater advantage to the employee. And it is entirely practical, even in dealing with seriously disabled men.

A cripple is only debarred by his disability from performing certain operations. In the operations which he can perform the disabled man will be just as efficient as his non-handicapped colleague, or more so. In the multiplicity of modern industrial processes it is entirely possible to find jobs not requiring the operations from which any given type of cripples are debarred. For such jobs as they can fill the cripple should be given preference.

Must Give Cripples a Chance.

Thousands of cripples are now holding important jobs in the industrial world. But they are men of exceptional character and initiative and have in general made their way in spite of employers rather than because of them. Too many employers are ready to give the cripple alms, but not willing to expend the thought necessary to place him in a suitable job. This attitude has helped to make many cripples dependent. With our new responsibilities to the men disabled in fighting for us the point of view must certainly be changed. What some cripples have done other cripples can do—if only given an even chance.

The industrial cripple should be considered as well as the military cripple, for in these days of national demand for the greatest possible output there should not be left idle any men who can be made into productive workers.

With thoughtful placement effort many men can be employed directly on the basis of their past experience. With the disabled soldiers who profit by the training facilities the government will provide, the task should be even easier.

This, then, constitutes the charge of patriotic duty upon the employer:

To study the jobs under his jurisdiction to determine what ones might be satisfactorily held by cripples. To give the cripples preference for these jobs. To consider thoughtfully the applications of disabled men for employment, bearing in mind the importance of utilizing to as great an extent as possible labor which would otherwise be unproductive. To do the returned soldier the honor of offering him real employment, rather than proffering him the ignominy of a charity job.

If the employer will do this it will be a great factor in making the complete elimination of the dependent cripple a real and inspiring possibility.

PRACTICAL SUGGESTIONS

GREASE FROM BRAKE DRUMS.

(Figure 62.)

Owners of Fords are often troubled by grease working out into the brake drums from the differential housing, lessening the efficiency of the brakes and making the wheels look unsightly. One means of preventing this annoyance is accomplished by boring a hole 3/16 of an inch in diameter half way between the differential and the brake, on each side of the axle. As the grease reaches these holes it will run out before it gets into the brakes. This suggestion is thoroughly practical and will not injure the efficiency of the axle.

LUBRICATING SPRINGS.

One of the most annoying things about an automobile is a squeaky spring. When a motorist complains about it to his garage man or to the dealer who sold him the car, it is evident that he has not been using the right kind of lubricant. Plain oils and greases squeeze out and permit friction between the bare metal of the leaves.

The Joseph Dixon Crucible Co., manufacturers of Dixon's Motor Graphite, gives this advice about lubricating the springs: Jack up the car so that all the weight is off the springs and spread the leaves apart with a screw driver or instrument provided for that purpose. Then smear a creamy mixture of kerosene and Motor Graphite between the leaves.

Springs thus treated will ride much easier and will be free from squeaks. If the graphite is of pure flake variety it will adhere to the surfaces, filling up and smoothing over the minute irregularities, and will not squeeze out.

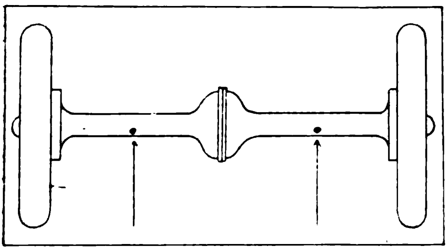


Figure 62.

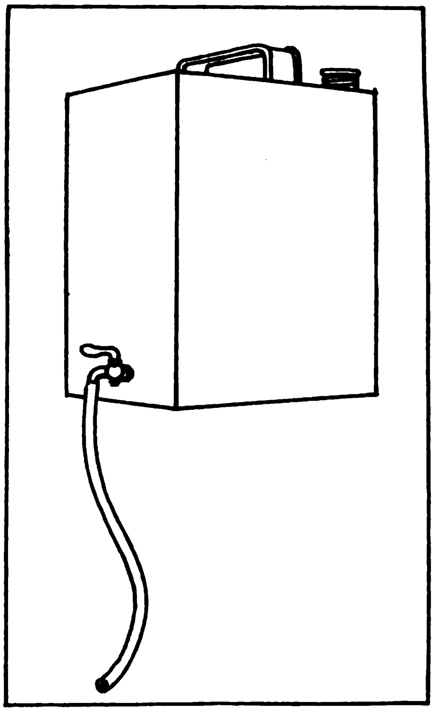


Figure 63.

ADJUSTABLE GASOLINE TANK.

(Figure 63.)

Many times in the garage there comes the need of using gasoline for use in carburetor repairing and in washing small parts. Unless the gasoline is nearby the repair man must stop and find a utensil to get gasoline in and there is always a waste, as the picked up can has not the proper spout for feeding the gasoline in the proper amounts as wanted.

A small square can with a petcock attached can easily be made and hung at any height convenient to the work man over the repair bench. A rubber tube may be attached to the petcock and the other end attached to a carburetor, assuring one of the proper float level, or left free to run a small stream of gasoline on a part to be washed. Being air tight this device is economical and handy.

OBTAINING A COLOR LINE.

One of the first things that bothers the novice when painting his car is the matter of getting a good line in color on the paint. An amateur will find it very difficult to make a regular, smooth and even width line with the ordinary painters' lining brush without many weeks of practise.

An ordinary draughtsman's ruling pen can be used for this purpose and will give a result equal to the lining done by an experienced painter. Water proof ink for use with these pens may be purchased at any draughtsman's supply house, though most kinds of paint can be used in the pen.

FILLING AND TESTING BATTERY.

A glass tube can be used very handily about the battery of the car. If it is inserted in the battery and the finger held over the top of the tube, the water lever can be determined by raising it and inspecting the depth of water in the tube. When filling the battery with water the glass can be held against the side of the tube, allowing the water to flow evenly into the hole without danger of spilling, as so often is the case.

NON CHANGEABLE SWITCH KEY.

(Figure 64.)

There are many suggestions to prevent the Ford from being stolen and one that is thoroughly practical is hereby illustrated. The switch plate is taken off and two holes drilled over and under the switch key entrance. Round headed bolts are inserted into these holes with nuts on the inside and the rest of the bolt filed off. These bolt heads will project about one-quarter of an inch from the surface of the switch plate and the switch key cannot be inserted unless a slot is filed from the switch key. This should be filed with a rat tailed file and it is well to have an additional key in case of emergency. The two bolts are necessary at both the top and bottom of the plate in order that a key in the hands of a person not authorized to take the car will be useless.

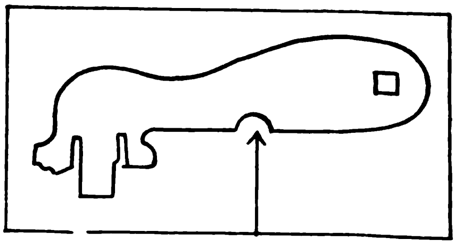


Figure 64.

DRESSING A LEATHER CLUTCH.

If refacing the clutch appears to be too much of a job for the amateur, there is a method of restoring its efficiency which will generally prove satisfactory, but which also necessitates the taking down of the clutch. When the cone is removed it is placed upon a bench and the facing stabbed lightly with a small penknife or an awl, going over the entire surface, making numerous small holes. The facing should then be dressed with castor oil, which has more of a chance in working in than it would if it were aplied to the unpunctured surface. Let the clutch stand over night and repeat the operation for two successive days. Then rub graphite over the surface with the back of some instrument having a hard, smooth surface like a tooth brush, rubbing the graphite vigorously into the openings made in the leather. This will form a sufficient, but not excessive lubricant, and the castor oil will soften the under side of the leather, affording a smooth and non-gripping clutch.

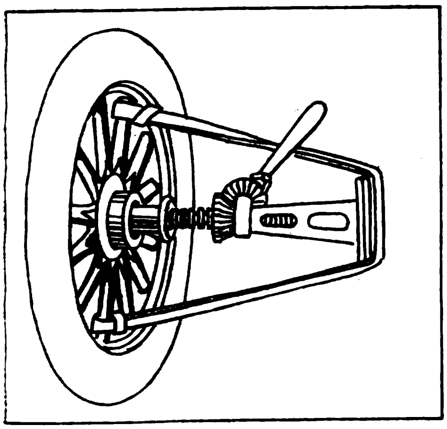


Figure 65.

HOME MADE WHEEL PULLER.

(Figure 65.)

If there is no wheel puller available when it is necessary to remove the wheel, a practical method is to wind a heavy strap about opposite spokes in the wheel and set the jack against the end of the axle with the boss of the jack in the strap as shown in the cut. Lever the jack until it sufficiently tightens the strap and a few taps with a hammer on the base of the jack, which will suffice to loosen the wheel so that it may easily be pulled off.

REMOVING TIGHTENED NUT.

Sometimes when working upon the engine a nut fails to come off readily and the wrench slips, bruising the fingers and causing a loss of temper. One method of loosening it is to heat the wrench white hot and placing the wrench upon the nut allow it to remain for a few minutes. This will cause the nut to expand and should be easily turned off.

SPARK PLUG TESTER.

(Figure 66.)

A neat little spark plug tester can be made with an old penholder and a two-inch cotter pin. The points of the cotter pin are spread apart to the width of about one inch and some thin rubber bands wound about the eye. The filler plug which holds the pen in the penholder is pulled out and the cotter pin secured firmly into the hole. This little device if properly made will do away with chance shocks experienced in using a screw driver or other uninsulated tool.

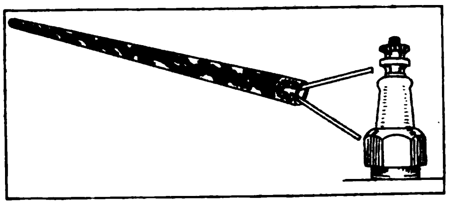


Figure 66.

ADJUSTING SHOCK ABSORBER.

(Figure 67.)

A simple way to test the Hartford Shock Absorber, as given in the Haynes Instruction Book, is to take the absorber from the car and clamp the double arm of the absorber in a vise and pulling the single or free arm with a spring scale. The initial or factory adjustment indicated by the pointer being at zero mark upon the absorber dial is 25 pounds on the spring scale.

To reset the adjusting nut is turned back so that the indicator points to zero, then measure the pounds pressure as illustrated. If any variation from the above occurs, turn the adjusting nut in the direction necessary to secure the desired tension. Mark the ring or outer edge of the absorber opposite the pointer, turn the adjusting nut to the left until the dial is free, counting the revolutions of the wrench in doing so, then move the dial so the zero is opposite the mark on the ring, see that the spider spring is in its place and adjust the nut, giving it the same number of turns. The pointer should stop at zero.

FILLING AND TESTING BATTERY.

(Figure 68.)

Without the proper utensils it is quite a difficult matter to find the level of the water in the battery and a handy method is to carry a glass tube in one of the door pockets. When it is inserted in the battery and the finger held over the top of the tube, the water level can be determined by raising it slightly and inspecting the depth of water in the tube. In filling the battery with water a steady hand is required to avoid slopping, but if the glass of water is held against the tube and allowed to flow downward it will follow the tube into the battery.

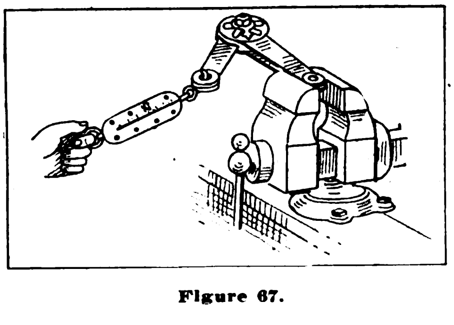


Figure 67.

CARE OF THE TOP.

If a top is folded when it is wet it will sooner or later be ruined. Grease or dirt should not be removed with gasoline. This method tends to dissolve the rubber composition in the fabric and will make it blister. The leather top should be washed with soap and water, the water preferably warm. A top dressing should then be applied. The top will hold its shape better if continually left up. When it is lowered care should be taken to push the folds of the fabric well in from the bows, as this will prevent creasing. A brushing inside will do much to lengthen its life. The top curtains and celluloid windows that have been scratched or blurred can be renewed by an application of acetone varnish.

REPAIRING GASOLINE LINE.

When the gasoline pipe breaks somewhere in its length, the usual method of repair is to slip a piece of rubber tubing over the broken portions. This method is not likely to be a success because the vibration of the pipe will, in a short time, break through the rubber tubing. If the rubber tubing is not at hand, however, a temporary repair may be made by winding a short piece of tape about the broken ends of the pipe and then strengthening it with thin wooden splints, winding tape about the whole to fasten it securely.

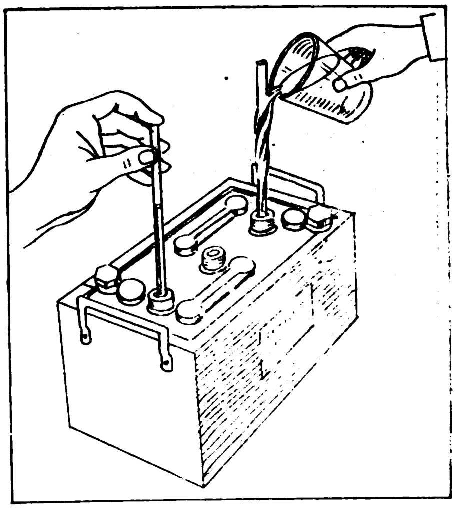


Figure 68.

PROTECTING FORD TIMER WIRES.

The wiring on Ford cars near the commutator is so placed that it soon becomes soaked with oil and covered with dirt. The wires, which are painted various colors for identification, quickly become coated, so that all semblance of color is lost. It is therefore impossible to make use of colors as a guide in replacing them on the timer should they be removed. A piece of rubber tubing, fiber will do as well, about 2¼ inches long by ⅜ of an inch wide, is placed over the assembly of wires and pulled up close to the timer. The wiring inside of this tubing is, of course, kept clean from oil and dirt, and when the occasion arises to remove the wires, the tubing is easily slipped back.

The Pettingell-Andrews Co.

AUTOMOBILE DIVISION

A Flourishing Accessory, Equipment and Supply Business That Is Founded on the Policy of Unqualified Satisfaction In Service.

THE advertised promise and the fulfillment thereof without restriction and in an unqualified manner has been the foundation of practically every great business success in America, and most notably in the case of John Wanamaker of Philadelphia, who built up the greatest merchandising concern of the time on the slogan that goods are not properly sold unless the customer is satisfied. This principle, strictly adhered to by the Pettingell-Andrews Co. of Boston, jobbers in electrical supplies throughout New England for the last quarter of a century, brought its rewards in a steady, healthy growth to a leading position in the trade, and when the company built up an extensive automobile supply trade, this same rule applied and the result was a business development that has called for the establishment of a separate branch to handle this business.

Main Office and Headquarters of Automobile Division, with Appointments and Equipment to Meet Business Efficiency Requirements.

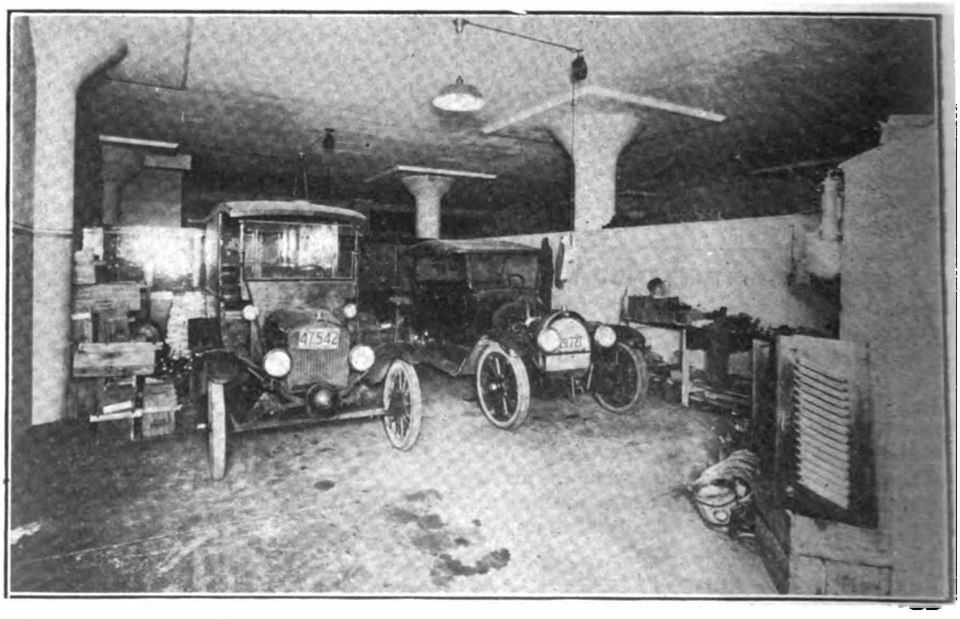
PETTINGELL-ANDREWS COMPANY

New Headquarters, Service Station and Sales Room at 100 Brookline Avenue.

This new branch is located on the ground floor in a new building at 100 Brookline avenue, the heart of the great automobile community in Boston, and has most modern and up-to-date equipment and facilities. It is under the management of W. E. Phinney and R. J. Brown, who are devotees of the true service idea. They dwell upon the fact that there are no "ifs," tricks, catches or obligations to the Pettingell-Andrews service, but that it is a service as complete and satisfactory to the public as an individual would give to himself.

In this new service station, which occupies 6000 square feet of floor space, there is a capacious business office and show room, large stock room, battery repair and storage department and large service room, where machines may be driven directly upon the floor to facilitate the work.

The equipment is complete and is capable of handling any rush of service, the various departments being so arranged that their capacity can be doubled whenever required. All the men in the **Eveready storage battery department are factory trained and can give the most efficient service, as well as perform the most reliable and dependable repairs. They also are extremely scrupulous about giving nothing but strictly honest advice as to the condition of batteries and their repair needs, as the management, above everything else, insisted that the enviable reputation gained by the Pettingell-Andrews Co. throughout New England for the past 25 years must be maintained. To accomplish this end an organization as nearly ideal as possible has been placed in charge of the automobile division of the company on Brookline avenue, and it has been furnished with a modern headquarters, ideal location and model equip-**



Spacious Service Room for Installation With Modern Appointments and Accommodations for Several Cars.

ment and starts with an established reputation.

The service man has explicit instructions to make an accurate test of batteries and to report the results without "hedging." If repairs to the battery are necessary the company will undertake the work only on the condition that they are sure the expense incurred will restore the battery to a satisfactory operating state.

Eveready storage batteries, made by the American Ever Ready Works, Long Island City, N. Y., is the leader of the Pettingell-Andrews line, and for which they are the New England distributors. Service on these batteries is extended throughout the territory through a comprehensive system of agencies established by the company, number over 100, and with stations in Providence, Worcester, Springfield, Portland, Bangor, Augusta, Nashua, New Haven and Hartford, which are equipped to render the same service in all respects as is given at the headquarters in Boston. Through this system of agencies the user of an Eveready battery in New England is never many miles from a station where he can have his batteries overhauled, recharged, exchanged or repaired. While acting as the exclusive distributor in New England for this battery, which is sold with a written definite guarantee of its service life, the company also gives repair service on all makes of storage batteries.

Battery Service and Repair Room with Complete Equipment for Handling All Overhaul Work on Storage Batteries.

In addition to the Eveready line, which also includes the Eveready starting and lighting system for Ford cars, and the Daylo Eveready, a hand electric trouble lamp, the Pettingell-Andrews Co. is New England distributor for the Versal Products Manufacturing Co., Detroit, Mich., the Tungar Rectifier, the newest and latest designed equipment for converting alternating current into direct current for recharging storage batteries, which is made by the General Electric Co. A general line of electric supplies, lamps and storage battery parts are also carried, including the Automatic Extension Reel for electric lamps for use in garages, machine shops, factories, stores, carpenter and blacksmith shops, and Exemplar automobile polishes.

The leaders of the Versal products line are the Genolite and the Speederator. The former, in type H, is a six-volt system for lighting the Ford car through a battery and generator. It gives a constant and sure head and tail light while the car is running or standing idle. It can be easily installed and the generator unit of the system is sold separately to those car owners who have cars already equipped with six-volt storage batteries. The system can also be used for motor ignition and the spotlight. Horns and dash lamps can also be connected with the battery if desired.

Extensive Store Room with Capacity of Hundreds of Batteries Arranged to Give Service with Minimum of Delay.

The Speederator is a device which automatically accelerates the speeds on the Ford engine for low and reverse speeds. It is so adjusted to meet the desired requirements that it acts independently of any extra movements of the foot pedals or hand throttle. It prevents the engine from racing and insures smooth running by automatically reducing the engine to idling speed when the gears are disengaged and also in changing to the different speeds. In addition to this the Speederator includes a foot-operated throttle, which is identical with those used on the highest priced cars. It entirely eliminates the danger of a "stalled" engine while pushing through traffic.

The device consists of a cross rocker shaft that is located behind the foot pedals and is supported by a bracket. On the shaft are two fingers that are immediately behind the slow speed and reverse pedals, the positions being such that when these are operated the movement of either pedal rotates the cross rocker shaft, opening the carburetor valve by means of the vertical arm on the shaft and a connecting rod to the carburetor. A spring takes up all lost motion and tends to keep the carburetor valve closed.

It is simple to install and men at the service station can apply it in a few minutes or any car owner with an ordinary mechanical sense can do the installation work.

The Eveready starting and lighting system is a "single unit system," which consists of a motor-generator, that is mounted in place of the crank on the front of the Ford car, for cranking the engine when starting and also for charging the storage battery when the engine is running.

The motor-generator and storage battery are the two active parts. The storage battery supplies the current for starting and also furnishes a reserve current for the electric lighting system. When the engine is running at a speed equal to 11 miles an hour the starting motor automatically becomes a generator that delivers a properly regulated charge into the storage battery.

The lights are controlled from a small switch that is conveniently placed on the left side of the front heel board, and they take their current direct from the battery.

This motor-generator is not mounted so that its weight is carried by the Ford engine, but is placed in front of the radiator, its weight supported by the cross channel member of the car frame.

The equipment consists of the following: One 12-volt motor-generator, complete with the necessary brackets and nuts for mounting. One master switch for mounting on steering column for control of the operation of the motor in starting. One No. 8140 (12 S-35 R) 35 ampere-hour, 12-volt Eveready non-sulphating storage battery, one black enameled steel battery box (with locks) for installation on right running board. Necessary bolts for holding battery box, also porcelain bushings for protecting wires running from the battery, lighting switch (fused), with terminals properly marked, designed for mounting on heel board, and complete cables to make connections, cut to proper lengths.

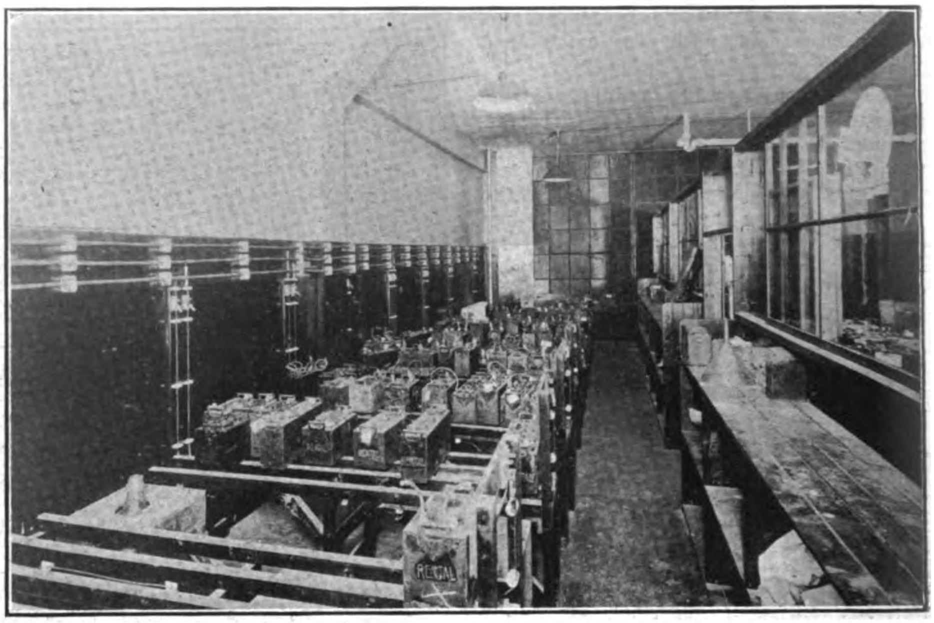
CHAMPION "MINUTE" SPARK PLUG CLEANER SIMPLE TO OPERATE.

Anyone who is at all familiar with the inner workings of a motor car, motor boat, or, in fact, any type of gasoline engine, knows that a clean set of spark plugs will often smooth out so-called "engine troubles," while the reverse is true if the spark plugs are allowed to foul up and remain in the motor indefinitely.

Heretofore the cleaning of spark plugs has always been a long, nasty, mean job. The majority of car owners, rather than undertake the work themselves, would go without the use of their car for a day or two, besides paying a good price for having the plugs taken out, dismantled, cleaned and overhauled.

Now it is different. Spark plug cleaning has been simplified to the point where even a child can do it. A new device, known as the Champion "Minute" Spark Plug Cleaner, seems to have solved the problem.

This little device consists of a glass tube containing 50 loose, hardened steel needles. One end of the tube is open and fitted with a rubber bushing into which a spark plug can be screwed in exactly the same manner as it is screwed into the cylinder of a motor.



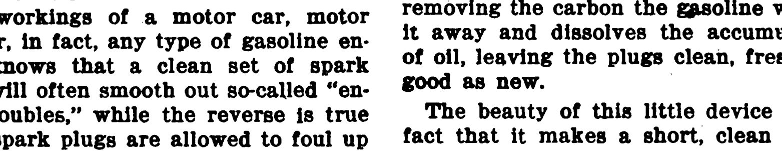
The Pettingell-Andrews Battery Recharging Room Showing Extensive Equipment to Handle Rush of Business Promptly.

That's all there is to the cleaner itself and the operation of cleaning is no trick at all. The tube is half filled with gasoline, the plug screwed into the bushing, then shaken vigorously for a minute or two and the plug is cleaned in less time than it takes to tell about it.

When the tube is shaken it starts the needles in motion and they peck away at the inner surface of the plug where the carbon has accumulated. Every time a needle strikes it picks off a small particle of carbon deposit and with 50 of them digging away the carbon disappears like magic. While the needles are removing the carbon the gasoline washes it away and dissolves the accumulation of oil, leaving the plugs clean, fresh and good as new.

The beauty of this little device is the fact that it makes a short, clean job of a long, mean one. The plugs do not have to be taken apart, soaked in gasoline and scraped in order to remove the carbon. That was a dirty job that consumed one's time and patience and necessitated a pair of overalls or the sending of a suit to the cleaners.

The Champion Spark Plug Co., Toledo, O., manufacturers of this novel automobile accessory, claim the demand for these cleaners has been so great that they have had to increase their production program several times since the first of the year.



Champion "Minute" Spark Plug Cleaner Showing Glass Tube with Cleaning Needles.

PRICE OF MAIBOHM INCREASED.

The price of the Maibohm model B six-cylinder touring car has been increased to $1150. The price of the Maibohm model A four-cylinder roadster and speedster remains at $830.

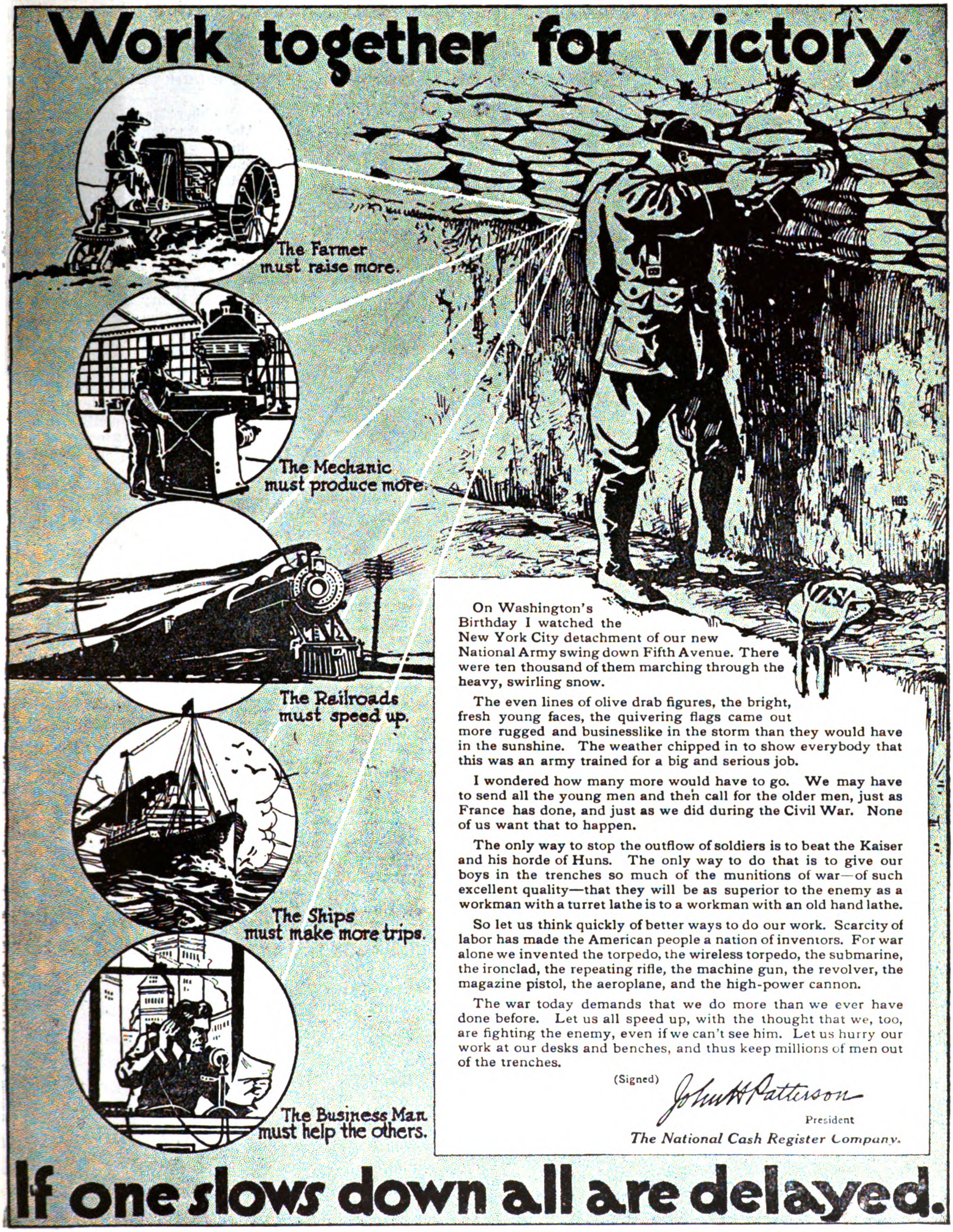
Lincoln Highway In Pennsylvania Will Be Repaired

Route Over Which Heavy Government Truck Trains Have Been Passing to Coast Will Be Maintained.

After carrying an unprecedented amount of exceptionally heavy traffic during the past Winter and Spring, due to the movement of government and freight motor truck trains over the route to Atlantic coast ports many sections of the Lincoln Highway in Pennsylvania have been badly cut up. Provision is being made, however, for the maintenance of the road in good condition.

Lieutenant Governor Frank B. McLain, Pennsylvania State Consul of the Lincoln Highway Association, speaking in this connection, states that tremendous demands have been made upon the Lincoln Highway in the course of the past few months, and that to aid in keeping it in good condition the Pennsylvania Commission of Safety and Defense, of which the lieutenant governor is secretary and treasurer, has set apart a sum of $500,000 to be spent in assisting the Highway Department in the upkeep of trunk line highways during the coming summer. The funds will be expended by the State Highway Department under the supervision of the lieutenant governor. A fairly good part of the road to be maintained with this fund is constituted by the Lincoln Highway.

Work is now being done upon the Lincoln Highway, leading from Paoli into the city of Philadelphia, which has shown extreme signs of wear. Many novel vehicles will be seen upon the highway during the present year. Numbers of tourists have equipped their automobiles with specially designed bodies for the transcontinental trip, others are using trucks which will carry all needed equipment for camping out along the way.


Work together for victory.
The Farmer must raise more.
The Mechanic must produce more.
The Railroads must speed up.
The Ships must make more trips.
The Business Man must help the others.
U.S.A.
If one slows down all are delayed.

On Washington's Birthday I watched the New York City detachment of our new National Army swing down Fifth Avenue. There were ten thousand of them marching through the heavy, swirling snow.

The even lines of olive drab figures, the bright, fresh young faces, the quivering flags came out more rugged and businesslike in the storm than they would have in the sunshine. The weather chipped in to show everybody that this was an army trained for a big and serious job.

I wondered how many more would have to go. We may have to send all the young men and then call for the older men, just as France has done, and just as we did during the Civil War. None of us want that to happen.

The only way to stop the outflow of soldiers is to beat the Kaiser and his horde of Huns. The only way to do that is to give our boys in the trenches so much of the munitions of war—of such excellent quality—that they will be as superior to the enemy as a workman with a turret lathe is to a workman with an old hand lathe.

So let us think quickly of better ways to do our work. Scarcity of labor has made the American people a nation of inventors. For war alone we invented the torpedo, the wireless torpedo, the submarine, the ironclad, the repeating rifle, the machine gun, the revolver, the magazine pistol, the aeroplane, and the high-power cannon.

The war today demands that we do more than we ever have done before. Let us all speed up, with the thought that we, too, are fighting the enemy, even if we can't see him. Let us hurry our work at our desks and benches, and thus keep millions of men out of the trenches.

(Signed) John H Patterson
President
The National Cash Register Company.

VITALIZERS PROVE EFFICIENCY ON MOTOR TRUCK OPERATION.

Broad claims of economy and efficiency are made for the Perfection five-in-one Vitalizer, manufactured by the International Motor Products Corporation, Chicago, Ill. This device is an automatic heating unit, combining a moistener, electric super-heater, primer, exhaust super-heater and accelerator, all in one unit. It attaches to the intake manifold at the intersection of the "T" above the carburetor and its principal function is to spray a charge of warm, moist preheated air to the molecules of gasoline as it rises from the carburetor, this instantly converts it into gas or vapor and thereby eliminates the heat put into the manifold pipe due to expansion, thus delivering the charge to the cylinders at a normal temperature.

With an efficient mixture of gas numerous benefits accrue, so numerous in fact that it would take a lengthy article in which to enumerate and describe them, but briefly they include maximum efficiency of the engine with resulting economy and ideal operation. There is no better proof of the value of a device than that gained through test in actual operation and this is offered by the manufacturers of the Vitalizer in the form of letters from users of this device who have found that it lives up to the claims of the makers. The following letters offer strong testimony in substantiating the claims made for the Vitalizer:

Chicago, Ill.
June 15, 1918.

International Motor Products Co.,
2037 Wabash Ave.,
Chicago, Ill.

Attention of Mr. W. J. Glynn, V. P. and sales manager.

Gentlemen:

Concerning the installation of your Vitalizers on our Mack truck, 3½ tons, and on our five Autocars, also on the Paige car that the writer is driving, am pleased to say that the following results based upon six weeks installation developed:

That we have increased the mileage on our Mack truck from 3½ to 5½ miles.

We have increased the mileage on our Autocars, three of which are doing tractor duty work, two miles to the gallon, and on the two Autocars that are running light we have increased the mileage 3½ miles per gallon.

The writer has shown an increase of three miles on the Paige car since the Vitalizer was installed. There is no question but what our power has been increased 15 per cent. All of our drivers are firm in this statement and the writer knows from his own experience that the results obtained up to date are very satisfactory indeed.

If you run across anyone who knows the writer I will be more than pleased to tell him of the cooperation you have rendered personally, as well as your associates, in getting results for us with your device.

Very truly yours,
J. K. GALVIN.
General Manager Pennoyer Merchants Transfer Co., General Teaming Contractors, Machinery Movers and Erectors, Office and Warehouse, 742-752 West Polk Street.

Chicago, Ill.
June 22, 1918.

International Motor Products Corp.,
2037 South Wabash Ave.,
Chicago, Ill.

Gentlemen:

After a thorough trial of the Vitalizers you installed on our fleet of Old Reliable Coal Trucks, we are pleased to report the following:

We have realized the increase in power from 15 to 25 per cent. per truck and where we were using 16 to 18 gallons per truck before we had the Vitalizer installed, we are now doing the same work with the Vitalizer and using 12 gallons per truck per day.

We have particularly noticed freedom from carbon—which has afforded us a large measure of relief—as we are enabled to keep our trucks in continuous service and avoid many former delays and repairs.

We believe the Vitalizer working in conjunction with the carburetor will readily solve the present heavy fuel problem than any device we have tried heretofore and it has proved your claims for it.

Very truly yours,
JAMES P. EGHOLM TEAMING CO.
A. L. Gregory, Superintendent of Garage.

PLAN FOR EXTENSIVE SERVICE ON JENKINS VULCAN SPRINGS.

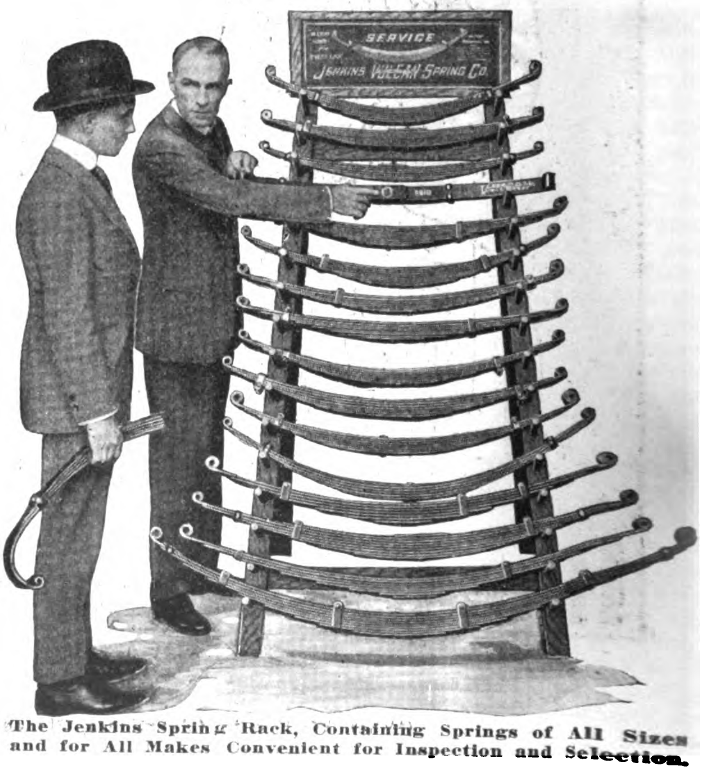
It is claimed by those who know that the average spring breakage for all automobiles is one to each car annually. The breaking of a spring is not one that the average car owner apprehends, so when this mishap occurs it has often happened that the car would be invalided for a week or more until the proper spring could be secured from the factory or otherwise procured.

Mr. T. B. Jenkins, president of the Jenkins Vulcan Spring Co. of Richmond, Ind., conceived a new idea in spring merchandising and some few years ago began to put this plan into effect.

Briefly this comprehended the idea of offering dealers and garage owners an assortment of springs in various sizes and types, duplicates of those used on most popular cars.

As a part of this plan the Jenkins concern provided a strong easel or spring rack containing springs of all sizes and make. This answers not only as a place to keep such an assortment, but is also an excellent display rack. Many of the largest dealers all over America now show this Jenkins rack as part of their window display.

The Jenkins Vulcan Spring Co. has some time ago entered into an extensive general magazine publicity campaign to supplement the advertising in this and other publications. The keynote of the Jenkins plan is "service." They state in their advertising that there is a spring in every town for every car, which means that within a reasonable distance from where a breakage occurs that a car owner will find a dealer or garage who will have a Jenkins Vulcan Spring exactly duplicating the broken one.



The Jenkins Spring Rack, Containing Springs of All Sizes and for All Makes Convenient for Inspection and Selection.

WEBBER CARBURETORS UNDER THOROUGH TEST IN NEW YORK.

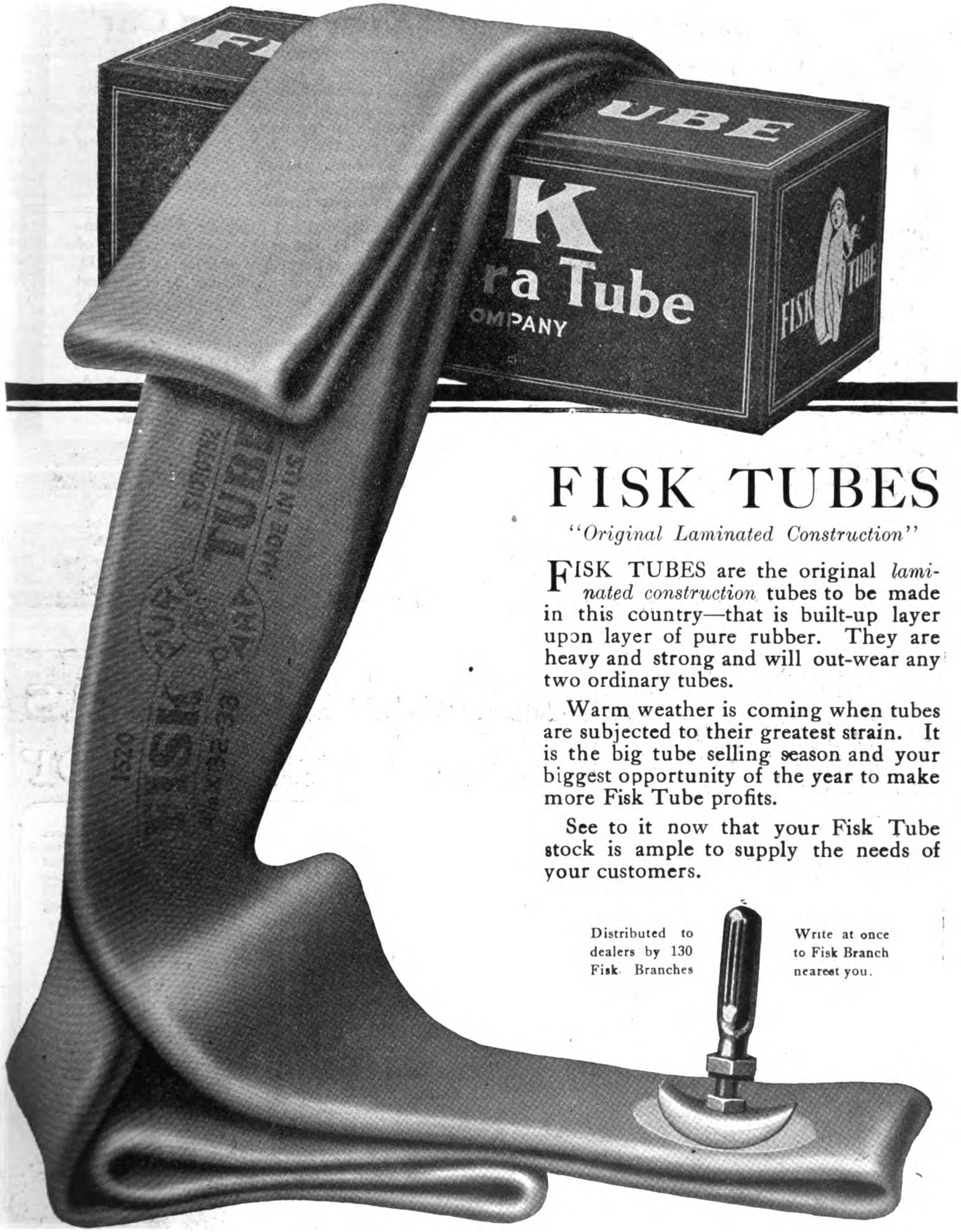
The Webber Manufacturing Co., Boston, Mass., through its sales representatives in New York City, has been making some very thorough tests of the Webber carburetor on various makes of cars. Some of the big truck concerns of that city are demonstrating that the Webber carburetor lives up to the many claims its manufacturers are making for it, and the service that is being rendered at the factory branch, 1765 Broadway, which is in charge of Henry S. Jacques, is building up a reputation for the company.

Agents for the State of Ohio were recently appointed and the territory is being rapidly opened up on the demonstration of the carburetor. William S. De Ott, 1397 W. 37th St., Cleveland, O., is distributing the "Webber" in Northern Ohio, and the Eagle Auto Co., 424 South Main St., Dayton, O., is handling the Southern Ohio territory.

WESTINGHOUSE ELECTRIC BUYS KRANTZ MANUFACTURING CO.

The Westinghouse Electric and Manufacturing Co., Pittsburgh, Pa., has purchased the property, business and good will of the Krantz Manufacturing Co., Inc., Brooklyn, N. Y., manufacturers of safety and semi-safety electrical and other devices, such as auto lock switches, distribution panels, switchboards, floor boxes, bushings, etc.

The supply department of the Westinghouse Co. will act as exclusive sales agent for the Krantz Manufacturing Co., whose business will be continued under its present name.



FISK TUBES

"Original Laminated Construction"

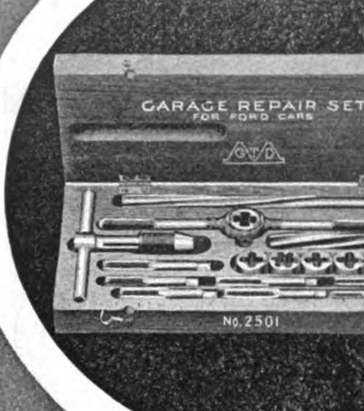
FISK TUBES are the original *laminated construction* tubes to be made in this country—that is built-up layer upon layer of pure rubber. They are heavy and strong and will out-wear any two ordinary tubes.

Warm weather is coming when tubes are subjected to their greatest strain. It is the big tube selling season and your biggest opportunity of the year to make more Fisk Tube profits.

See to it now that your Fisk Tube stock is ample to supply the needs of your customers.

Distributed to dealers by 130 Fisk Branches

Write at once to Fisk Branch nearest you.



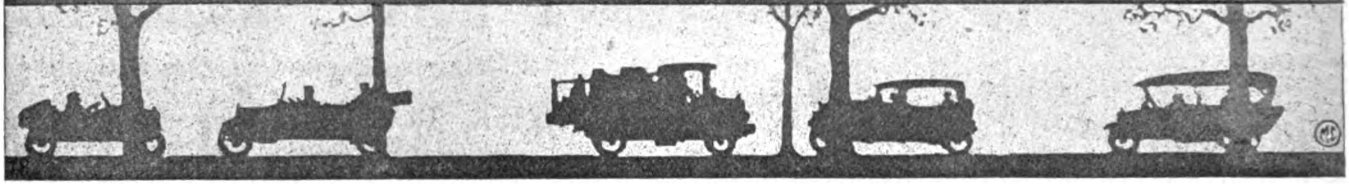
For "Every Other Car"

Here is a complete Automobile Screw Plate for Ford cars, consisting of Taps, Dies, Reamers, Stocks, Tap Wrenches fitted for the requirements of the Ford. It is called a Garage Repair Set, but is equally valuable to the dealer and car owner—in fact every one who has occasion to care for a Ford car can use and needs this set. It is furnished in a well made wooden box, handy for general use and to carry on the road to repair jobs.

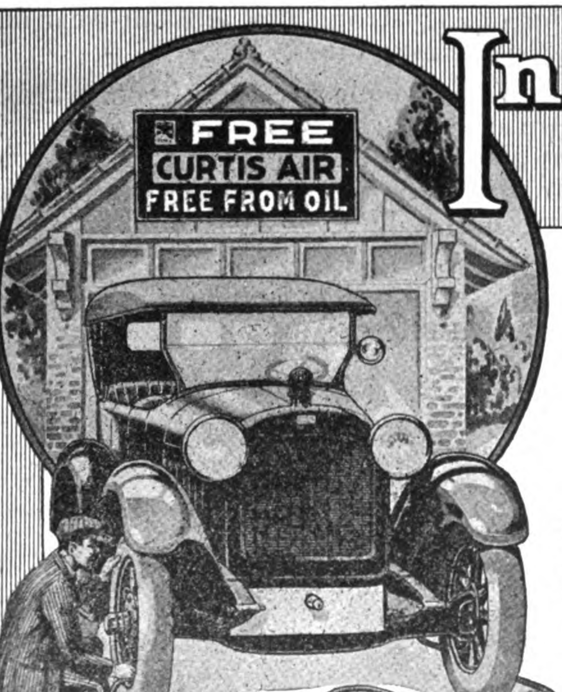
As Ford led in standardized production of automobiles, so has G. T. D. led in the standardization of screw threads. This set consists of selected G. T. D. products to fit the Ford requirements. It is a sound investment, as proven by the large numbers sold and in use.

On sale by the best dealers—write us for particulars and catalog.

GREENFIELD TAP & DIE CORPORATION
Greenfield Massachusetts, U. S. A.
New York, 28 Warren St. Chicago, 13 South Clinton St.
Canadian Plant, Wells Brothers Company of Canada Limited, Galt, Ontario.



Install a Curtis Air Compressor



Display a CURTIS "FREE AIR" SIGN above your door—it inspires confidence and will help build your business. Motorists are looking for this familiar CURTIS slogan—because they know oil rots tires—and that a CURTIS Air Compressor furnishes AIR FREE FROM OIL, which means fewer blowouts, greater tire mileage and less repairs. The CURTIS is the ONLY Garage Air Compressor with the controlled splash oiling system that eliminates all danger of forcing oil into the air line.

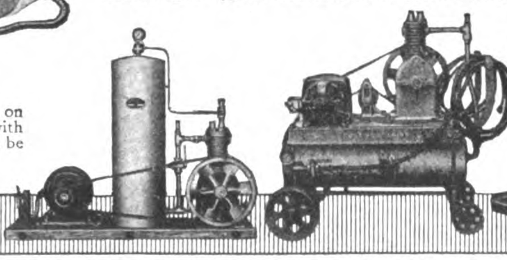
CURTIS AIR
FREE FROM OIL

Investigate the many exclusive features of CURTIS Garage Air Compressors. The line is complete—five sizes—stationary or portable. Just write your name and address on the margin of this advertisement—tear it out and send it to your jobber, or to us direct, for complete information and prices.

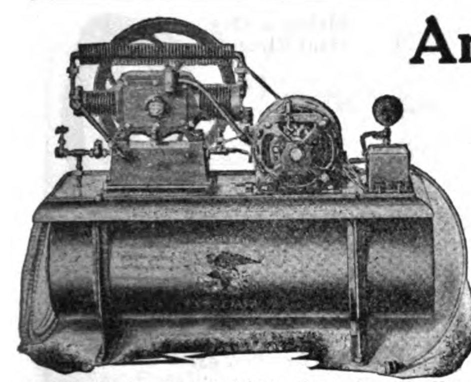
Curtis Pneumatic Machinery Co.
1621 Kienlen Ave., St. Louis, Mo.
Branch Office—531-A Hudson Terminal, New York City

The Curtis Sign

Illustrated above—is 10x14 inches—baked enamel on steel. Cannot be bought, but is furnished FREE with every CURTIS Garage Air Compressor—and cannot be had in any other way.



Any One of the 20 U.S. Air Compressors a "Good Buy"



HERE is a machine that is wholly worthy of carrying the name United States representing as it does the greatest possible attainments and incorporating all the highest refinements that mechanical ingenuity has been able to contrive.

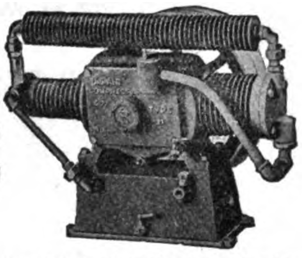
The U. S. DeLuxe Two Stage Automatic Air Compressor is the kind of machine that is almost invariably bought when a desire to own the best and most efficient machine is the governing factor.

The DeLuxe exactly meets the needs of a majority of garages. It maintains high pressure in great volume, is extremely quiet in operation, handsome in appearance, entirely automatic in operation and requires only a minimum of attention to keep in perfect running order.

THE UNITED STATES LINE comprises 20 different numbers in TWO STAGE and SINGLE STAGE TYPES, and various individual equipment adapted for forming combinations of almost unlimited kinds and capacities.

Each machine is designed to fill a particular need and it will perform that service in a manner that is never excelled and seldom equalled.

Our catalog giving complete information will be sent free upon request.

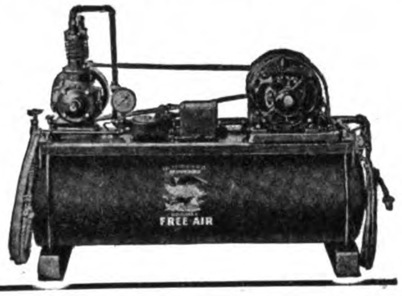


U. S. TWO-STAGE COMPRESSORS without tank, motor or controlling equipment can be furnished if desired, having tight and loose pulleys as illustrated or large single wheel for direct motor drive. Capacities, 4, 10 or 20 cubic feet per minute.

THE machine illustrated below occupies the same position in the Single Stage field that has been obtained by our DeLuxe unit in the Two Stage field.

The U. S. Single Stage Automatic Air Unit D22 will be found highly satisfactory for garages and free air stations where the volume of business does not seem to justify the purchase of our DeLuxe Unit.

This outfit is shipped completely assembled, piped and tested, and will be ready to run when attached to lighting or power circuit, thus avoiding any expense for installation.



All U. S. motor driven units equipped with patented unloader which prevents burning out of motors, slipping of belts, etc.

The United States Air Compressor Co.

6538 Carnegie Avenue, Cleveland, Ohio.

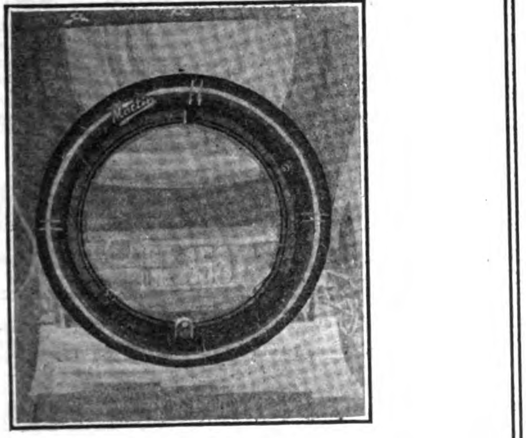
Please send catalog as advertised in Accessory and Garage Journal.

Name ________________________________

Address ________________ City ________________

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.

Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts.

The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

MOSCO

Timer For Ford Car

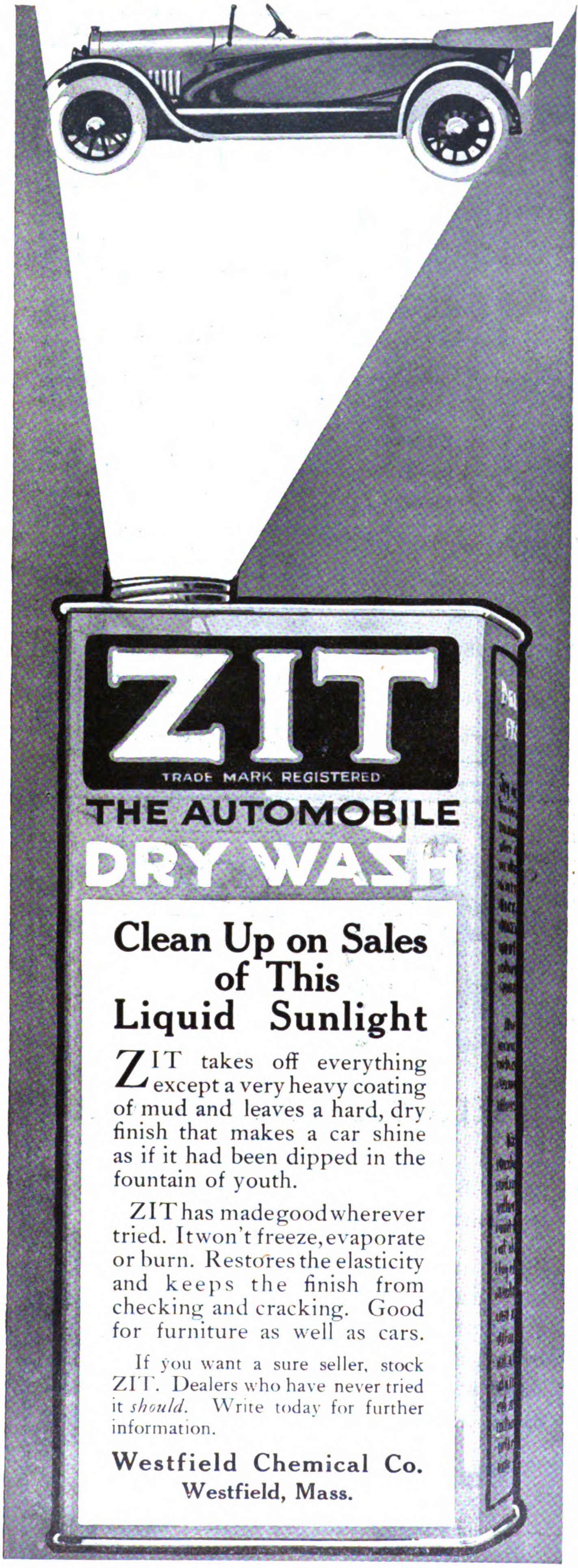
Extra heavy pressed steel shell, aluminum finish. Insulating ring of gray bone fibre.

Terminals insulated all the way through. One-hand, self-closing oiler. Pressed steel arm and compression spring on brush assembly. Brush assembly sold separately. Interesting prices. Immediate delivery.

MOTOR SPECIALTIES CO.

MANUFACTURERS

WALTHAM MASS.



Clean Up on Sales of This Liquid Sunlight

ZIT takes off everything except a very heavy coating of mud and leaves a hard, dry finish that makes a car shine as if it had been dipped in the fountain of youth.

ZIT has made good wherever tried. It won't freeze, evaporate or burn. Restores the elasticity and keeps the finish from checking and cracking. Good for furniture as well as cars.

If you want a sure seller, stock ZIT. Dealers who have never tried it *should*. Write today for further information.

Westfield Chemical Co.
Westfield, Mass.

ELECTRIC GLUE POT

Mabey's Dry
Heat Electric

Glue Pot

No flame; no soot or smoke. All danger of fire is eliminated

Capacity	Price without cover
1 qt.	$ 9.50
2 qts.	11.00
3 qts.	12.75
4 qts.	15.75

Century
Automobile Cigar Lighter, Complete $1.00 Each, F. O. B. Indianapolis.

DEALERS—Write For Prices.

MABEY'S ELECTRIC & MFG. CO.
968 Ft. Wayne Avenue INDIANAPOLIS, IND.

Stenman Electric Valve Grinder

GRINDS ALL TYPES OF VALVES

The STENMAN
ELECTRIC VALVE GRINDER CO.
WORCESTER MASS.

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

Strengthen Your Advertising Literature

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

Ross-Gould
Mailing
Lists St. Louis

BUNTING BEARING BRONZE
B. B. & B. CO.

Bunting Bearing Bronze
IN
CORED BARS

Instead of hunting—
Try
BUNTING
IT'S STANDARD

Ask Almost
Any Jobber
Send for booklet N.

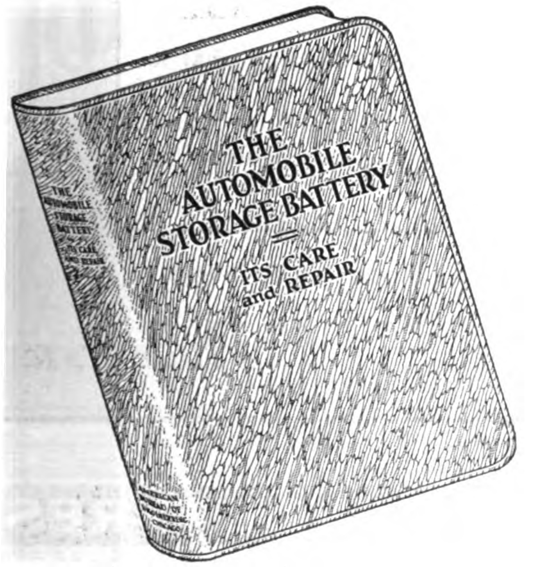
The Bunting Brass &
Bronze Co.
727 Spencer Street.
Toledo, - - - - Ohio

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3½
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15½
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20

Battery Repairman's Encyclopedia

The Practical AUTHORITY of Lead-Acid Batteries used for Automobile Ignition, Starting and Lighting, covering the theory of design and construction. In a simple way tells just how to repair, restore and rebuild to secure full power and efficiency.



The only book that deals extensively of all repairs that can be practically made, written by an experienced engineer with the aid of many expert repairers.

It deals with batteries from every viewpoint. The novice can read and understand, as well as the engineer. The most complete information ever published. Invaluable for repairers in every battery garage or service station.

Special instructions for different types of batteries in general use.

The book contains 280 pages, with 186 illustrations, graphs and charts, the section devoted to Rebuilding has 131 cuts, many from special photographs, detailing repair methods.

HANDSOMELY BOUND IN FLEXIBLE LEATHER COVER - - - **Price $5.00**

Sold with the privilege of five-day examination and of refund of purchase price if not satisfactory.

PUBLISHED BY

THE AMERICAN BUREAU OF ENGINEERING, Inc.

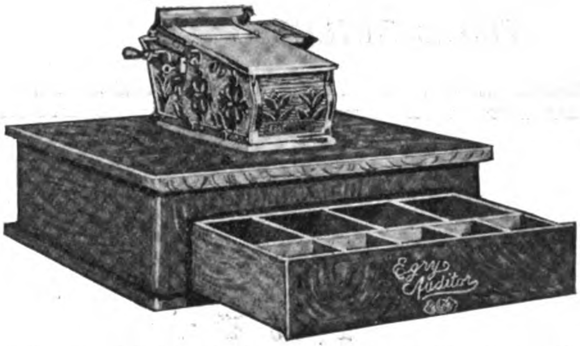
1018 Wabash Ave. Chicago, Ill.

Make Your Business Safe For Success !

Just as modern, efficient and practical implements are necessary in the successful prosecution of the war, so in business are appliances that make for better business and the possibility of success actually needed

Your business is your concern—its success is your success; its profits are your profits, hence its *up to you* to make your business safe.

Egry Garage and Automobile Accessory System is worth your while to investigate. Its adoption will prove itself one of the most profitable investments you have ever made, because it protects *you* and *your business.*



Adopt the Egry System—gain the benefit of its advantages—it will do all this and more for you!

A complete record of each day's business; perfect control of all charges; safeguard your cash transactions; avoid unpleasant disputes; make your employees careful; increase trade confidence; cause the customer to automatically become a part of the system; aid in stock accounting; keep you posted on the details of your business by means of a secret record of each transaction; overcome the element of worry and waste; create efficiency.

Send today for detailed information—you incur no obligation to purchase. Our bulletin fully describing this worthy and meritorious System is yours for the asking. The cost of installation is trifling—the results in service and saving enormous.

SYSTEMS EGRY REGISTER COMPANY

DO IT NOW—Send for bulletin!

The Egry Register Company

431 Monument Ave.
DAYTON, OHIO, U. S. A.

Let the name "EGRY" be associated with your every thought of "BETTER BUSINESS."

UNIVERSAL TRUCK ACCOUNTING SYSTEM

(Copyright, May, 1914, by The Automobile Journal Publishing Company.)
All Rights of Use or Publication in Any Form Reserved.

It affords every detail of time and work of any number of machines, the labor, operating cost, revenue and earnings, with comparisons for any period, in one record book and day card for each truck.

The simplest and most comprehensive record ever conceived, adaptable for use with any method of house bookkeeping or independently, that can be made to serve as part of any method of accountancy.

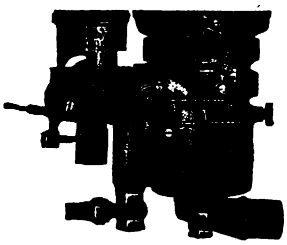
The most intensely practical system of accounting ever devised, that can be maintained by a girl clerk and which has no limitations.

When you know the exact cost of truck operation and what is earned through the use of any vehicle, you have data of the greatest practical value.

Detailed information at request. When writing state number of trucks in use.

The Motor Truck

TIMES BUILDING PAWTUCKET, R. I.



YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

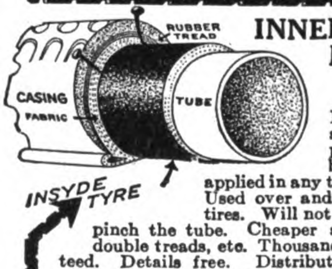
More Mileage—More Power—More Speed

Get him to try it for 15 days. Satisfaction guaranteed.

WEBBER MANUFACTURING COMPANY

Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway

INSYDE TYRES



INNER ARMOR FOR AUTO TIRES

Double tire mileage, prevent punctures and blowouts. Easily applied in any tire without tools. Used over and over in several tires. Will not separate, heat or pinch the tube. Cheaper and better than double treads, etc. Thousands sold. Guaranteed. Details free. Distributors, dealers and agents wanted. Act quick.

American Accessories Co., Dept. GJ, Cincinnati, O.

BAR OUT ALL BOTHER

• AND BREAKAGE •

The most dependable defense ever devised against danger and damage is provided in

HIGGINS QUALITY SPRINGS—For Replacement

'Guaranteed alike at all points. Made without center bolt or hump. Possess resiliency that protects car. Sturdy strength that gives longest wear. Safest to order for own use. Most certain to satisfy customers.

Splendid discounts to dealers. Immense demand. Write for discounts and catalog 1917.

HIGGINS SPRING & AXLE CO., Dept. 629 Racine, Wis.

NO BOLT-NO HOLE-NO HUMP-NO JOLT

Guaranteed Bearings

We Exchange Rebuilt Bearings for old or worn ones BILODEAU BALL BEARING WORKS

ECONOMY *Plus* EFFICIENCY

These words mean great strength toward winning the war. They form our policy—and by the standard of that policy we are continually schooling garage men and repair men to avail themselves of our exceptional service of Rebuilding Worn Bearings.

Bilodeau Rebuilds All Makes of Worn Bearings, to Run as True as When New.

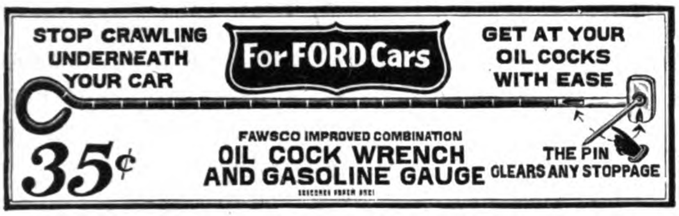
Write at once for catalog, listing types, sizes and prices of standard bearings. Trade discounts confidential.

BILODEAU BALL BEARING WORKS

66 Stanhope Street, BOSTON MASS.

SELL A TOOL

A notched stick will turn an Oil Cock, but only our device will then tell whether the crank case is empty or the Cock stopped up.


STOP CRAWLING
UNDERNEATH
YOUR CAR
For FORD Cars
GET AT YOUR
OIL COCKS
WITH EASE
FAWSCO IMPROVED COMBINATION
OIL COCK WRENCH
AND GASOLINE GAUGE
35¢
THE PIN
CLEARS ANY STOPPAGE

Our Patented Wrench with Cleaning Pin is the Only Tool with This Feature

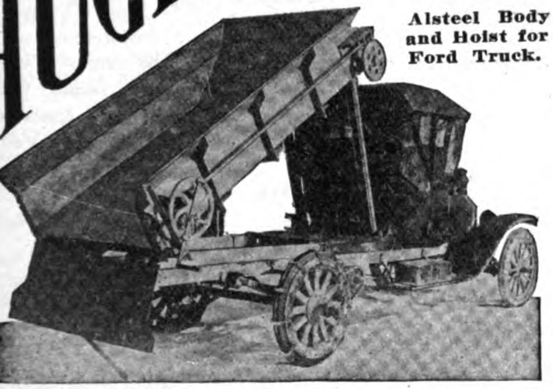
Dealer's Price Doz. $2.80

If your Jobber Cannot Supply, Write Us

J. H. FAW, Inc.

37 Warren Street
New York

AUGLAIZE HOIST



Alsteel Body and Hoist for Ford Truck.

Boosts the Load With the Least Effort

QUADRUPLE WORM GEAR

Built in sizes up to 5 tons. Weighs less than any other hoist and covered with a liberal guarantee. **Prices up to 1½ tons, $83.00; from 1½ to 5 tons, $109.00.**

AUGLAIZE ALSTEEL BODIES

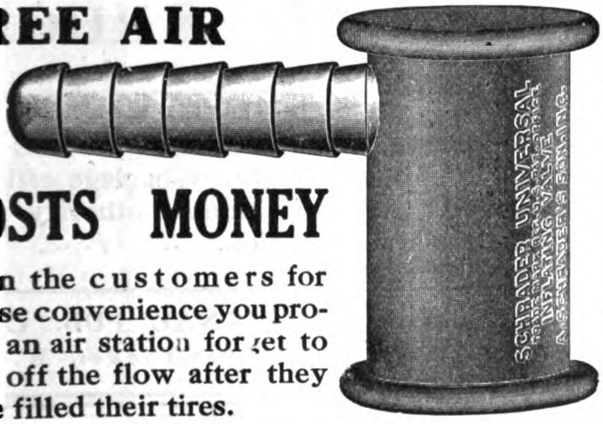
Staunchly constructed of all steel and guaranteed against defective material and workmanship. Will carry 50% overload. Prices range from $150.00 to $225.00, according to size.

Auglaize Special Alsteel Body and Hoist for Ford Truck

Carrying capacity from 2700 to 3000 lbs. of gravel, sand, crushed stone or coal; approximate weight, 550 lbs. **Retail price, $206.25. Equipped with the Auglaize Powerful, Speedy, Light-Weight Hoist. Dealers allowed a liberal commission and selling co-operation. Write at once for catalog and sales plans.**

THE AUGLAIZE MOTOR CAR CO, New Bremen, Ohio

FREE AIR


SCHRADER UNIVERSAL
INFLATING VALVE
A. SCHRADER'S SON, INC.

COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Automatic Inflating Valve

to your air hose.

Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve.

Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.25 in U. S. A.

W. S. S.

We	Suggest	Stamps
War	Savings	Stamps
Without	Shells	Soldiers
Would	Soon	Succumb
War	Savings	Stamps
Will	Supply	Soldiers
With	Shells	

Buy all you can and help to win the war.

Manufactured by **A. SCHRADER'S SON, Inc.**
800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to owners of pleasure cars.

TRIPLEXD
TRIPLEXD
GASOLINE HOSE

METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

ONE GALLON
BLUE RIBBON
TRADE MARK
REGISTERED U.S. PAT. OFFICE
GREASELESS CREAM
AUTOMOBILE
BODY GLOSS
INDIANAPOLIS, IND.

KEEPS THE BODY OF YOUR CAR

Shining

LIKE A MIRROR

No Grease to Catch Dust
Does Not Coat the Finish
Best Furniture Polish Made
Use With Spray if Desired

International Metal Polish Co.
INDIANAPOLIS, INDIANA

DETROIT BATTERIES

For every make and model of motor car carrying an electric starting system. Replacements on cars no longer manufactured can be had promptly.

Detroit Battery Co.
Detroit, U. S. A.

CHASE *Leatherwove* "To take the hide in most respects, in some respects be better"
CHASE MOHAIR VELVETS FOR UPHOLSTERY
CHASE DREDNAUT Motor Topping
CHASE PLUSH AND WOOL MOTOR ROBES

Familiarize yourself with Chase Products.

The choicest of upholstery fabrics for motor cars, Leatherwove or Mohair Velvets.

Wonderful robes for the Motorists.

L. C. CHASE CO.
BOSTON

New York San Francisco Detroit Chicago

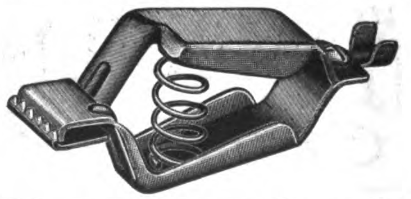
THE MOTOR TRUCK

Published Monthly The year $2; the copy 20c

A magazine for business men devoted to the promotion of highway haulage efficiency. It is the national authority of vehicular transportation. . . . .

AUTOMOBILE JOURNAL PUB. CO.
Times Building Pawtucket, R. I.

UNIVERSAL BATTERY CLIPS



Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals. No. 21-A—lead plated—1½" spread of jaws.
Sample mailed postpaid for 15c in stamps.
Single Lots, Each 20c. Lots of 10, Each 15c.
Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.

TRADE OUTLET

AUTO SALVAGE CO., INC.

The World's Largest New and Used Parts House. St. Louis, 2823-25 Locust St.; Kansas City, 1701 Main St.; Cincinnati, 214 E. Third St. Write to nearest office.

Parts for any Automobile at a saving of 50% to 80%. Our three great plants cover every state in the Union, and we are therefore in better position to fill your orders.

Engines—40 to 50 of them on the floor now and we will make prices on them that will move them. Several unit power plants.

Transmissions—Planetary, two-speed, three-speed, four-speed, centre control, with and without multiple disc clutch; all at surprisingly low prices.

Rear Axles—From the Timken to the Ford, many with transmission on them, at prices from $10 to $75.

Our Guarantee: You Must Be Satisfied. Any article purchased from us which does not in your opinion, give satisfaction or fit, can be returned to us at our expense and your money will be cheerfully refunded.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. 40 Mathewson St.
Providence, R. I.
Phone Union 4179-R.

Auto Parts

SAVE AT LEAST 50%

We have in stock at all times parts for Stearns, Stevens-Duryeas, Flanders. Maxwells, E. M. F., Buicks, Mitchells. Speedwells, Herreshoffs, Hudsons, Elmores, Pope Hartfords and Franklin 6s.

Write, Wire or Phone.

BOSTON AUTO PARTS CO.,
1240 Dorchester Avenue, Boston, Mass.

AUTO PARTS.

50% to 75% Off Mfg. Price List.

Parts for Packards, Buicks, Chalmers, Overlands, Jacksons, Fords and 75 others. You can save 50% to 75% from accessories.

Mail orders will be attended promptly.
Tel. Brockton, 910.

A. BERGER & SON,
104 Otis St., Brockton, Mass.

BOSCH MAGNETOS; all models; Eisemann, Splitdorf and Remy Magnetos always on hand. Price list sent. D. Lenthe, Ordway Bldg., Newark, N. J.

FOR YOUR

AUTOMOBILE PRINTING

GET IN TOUCH WITH

KEYSTONE SERVICE PRINT, Inc.

307 W. 47th St. :: :: NEW YORK, N. Y.

OUR STAFF AND FACILITIES ARE ESPECIALLY EQUIPPED TO CATER TO YOUR WANTS

Send it to Detroit

MAGNETOS.

Bosch DU-4 Variable spark	$30.00
Bosch Du-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cyl. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	10.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hour service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange
192 Grand River Ave, Detroit, Mich.

CYLINDERS RE-BORED

All sizes. Oversize Pistons, Rings, Etc.

Fords	$15.00

Croft Electric Lighting Outfits for Ford Cars. Agents Wanted.

THE AUTO EXCHANGE,
7 Reservoir Ave., Providence, R. I.

AUTO RADIATOR REPAIRMEN able to repair any and all kinds of radiators, wanted by the **H. & L. Co., 139 Columbus Ave., Boston, Mass.**

After working on your car **wash** your hands without water by using

"PARKO."

Send 25 cents and dealer's name for a large can to

M. FRANKLIN,
28 School St., Boston, Mass.

WE CAN DUPLICATE ANY PART FOR YOUR CAR AT A LOWER PRICE.

"New Parts for All Cars."

BATTERIES.

6 volt 100 hour Exide Storage Batteries	$18.50
6 volt 100 hour Century Storage Batteries	20.00
6 volt 80 hour Willard Storage Batteries	22.00
Battery boxes, all sizes	$1 up

BODIES—ALL BRAND NEW.

Beautiful streamline Maxwell bodies—completely upholstered and painted; can be easily made to fit Fords, Chevrolet 490, Hudson 20, R. C. H., Monroe, Dort and several other light cars.

Roadster type	$30.00
Touring type	35.00
($5.00 extra for crating.)	
Abbott Cloverleaf Bodies—complete with top and shield	$150.00
Late type Packard, 7 passenger body, complete with top and windshield	300.00

WHEELS AND RIMS.

For all cars	$3 up
Houk Wire Wheels, 34x4½, 36x4½, set of five wheels	75.00

FEW BARGAINS FROM OUR BULLETIN.

Gasoline Tanks, all shapes and sizes	$1 up
4 and 6 cyl. Motors	$49.50 up
Windshields for all cars	8.00 up
Frames will fit most any cars	10.00 up
Hayes Crown Fenders for Fords—per set of four	15.00
Special ratio Ring Gears—for Fords ratio 4-1	12.00
6 volt Ward-Leonard Starting Motors	15.00
6 volt Ward-Leonard Generators	15.00
Connecticut type G Lighting Switches	7.50
Connecticut GA Coils	7.50
Bosch DU4 Magnetos—variable spark	30.00

Write for a copy of our free bargain bulletin.

PURITAN MACHINE CO.,
"All Parts for All Cars."
51 Tenth Street, Detroit, Mich.

AUTO PARTS

Why pay full price when we can save you, on slightly used parts, **50 to 75%?** **Magnetos**—Bosch DU 4 set spark, **$20;** Bosch DU 4 variable, **$25;** Bosch 6 cyl., **$20.**

Motors—$40 to $100.

Write for specifications.

PRISCOL AUTO PARTS CO.
266 Grand River Ave. Detroit, Mich.

"NORMA"

PRECISION
BALL BEARINGS
(PATENTED)

The highest speeds in car or truck—many times the speed in any other part—are carried by the magneto and lighting generator. At high car or truck speed, the speed of these accessories may reach tremendous figures. Is further argument needed, to demonstrate the vital necessity of speedability in ignition and lighting apparatus?

For years past, in America and abroad, in the magnetos and lighting generators invariably identified with cars and trucks of notable dependability, "NORMA" Ball Bearings have been the standard bearings. Their pre-eminence in this field is the result of an unbroken record of satisfactory performance.

**Be *Sure*—See That Your
Electrical Accessories
Are "NORMA" Equipped.**

THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK
Ball, Roller, Thrust. Combination Bearings

THE ACCESSORY AND GARAGE JOURNAL
INDEX TO ADVERTISERS

Page
Adamson Mfg. Co........4
Advance Auto Accessories Corp........8
American Accessories Co........56
American Bureau of Engineering, Inc........55
Auglaize Motor Car Co........57
Auto Exchange........59
Automotive & Accessories Exposition, Inc........13
Auto Salvage Co., Inc........59

Bacon Service........62
Ballman-Whitten Mfg. Co........62
Bearings Service Co........6
Bilodeau Ball Bearings Works........56
Boston Auto Parts Co........59
Bowser & Co., Inc., S. F........64
Brunner Mfg. Co........14
Bunting Brass & Bronze Co........54

Chase Co., L. C........58
Colorado Tire and Leather Co........3
Continental Auto Parts Co........62
Corp Brothers........59
Curtis Pnuematic Machinery Co........52

Detroit Battery Co........58
Detroit Magneto Exchange........59
Dixon Crucible Co., Jos........64
Dyer Co., G. H........1

Egry Register Co........55

Faw, Inc., J. H........57
Fisk Rubber Co........51
Fitzgerald Mfg. Co........12

Greenfield Tap and Die Corp........52

Harvey Spring and Forging Co........7
Higgins' Spring and Axle Co........56
H. & L. Co........59

Imperial Oil Co........61
International Lubricants Co........63
International Metal Polish Co........58

INDEX TO ADVERTISERS

(Continued)

❦

Page

Jenkins Vulcan Spring Co.......................... 2

Keystone Service Print Co., Inc....................59
King Bull Mfg. Co.............................Cover

Lawson, F. H., Co.................................61
Lenthe, D...59

Mabey's Electric and Mfg. Co......................54
Martin Mfg. Co....................................53
Metal Hose and Tubing Co..........................57
Mossberg Co., Frank...........................Cover
Motor Specialties Co..............................53
Mueller & Co., R. S...............................58

National Cash Register Co.........................49
New Departure Mfg. Co.............................62
New Era Spring and Specialty Co...................64
New York Coil Co..................................63
Norma Co. of America..............................60

Piston Ring Co....................................62
Priscol Auto Parts Co.............................59
Puritan Machine Co................................59

Ross-Gould List and Letter Co.....................54

Scaife, Wm. B. & Sons Co..........................62
Schrader's Son, Inc., A...........................57
Shaler Co., C. A..................................10
Shurnuff Mfg. Co.................................. 9
Stenman Electric Valve Grinder Co., Inc...........54

United States Air Compressor Co...................53

Vanderpool Co.....................................62

Walden-Worcester, Inc.........................Cover
Webber Mfg. Co....................................56
Westfield Chemical Co.............................54
Weston Electrical Instrument Co...................11
Williams Foundry and Machine Co...................63
Wisconsin Auto Top Co............................. 5

Evr-Lastin
GEAR COMPOUND
IMPERIAL OIL CO
ST LOUIS

THE PERFECT GEAR LUBRICANT

For Transmissions And Differentials

Evr-Lastin will not run in hottest weather—will not freeze in coldest weather—sticks to metal under the worst strains and pressure—preventing wear and assuring perfect lubrication.

Evr-Lastin TRADE MARK

GEAR COMPOUND

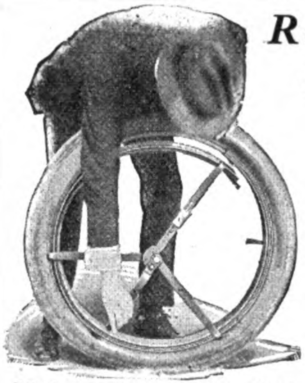
Less Required—Lasts Longer

It is only necessary to use one third the quantity of *Evr-Lastin* that you would oil or grease—and will last three or four times as long. Comes in 5, 10, 25 and 50-lb. tins—also in 225 and 400-lb. barrels.

FREE TO DEALERS With first order for half or full barrel of *Evr-Lastin*, we will send a self measuring 20-lb. grease cabinet free—pumps ¼-lb. to the stroke.

You will find *Evr-Lastin* a big money maker—write us today for prices and full particulars.

IMPERIAL OIL CO.
3142 Locust St. St. Louis, Mo.



(13) Shows continuation of contraction to the point where the tool locks and tire can be removed

Removes Tires Quick From 50 Rims

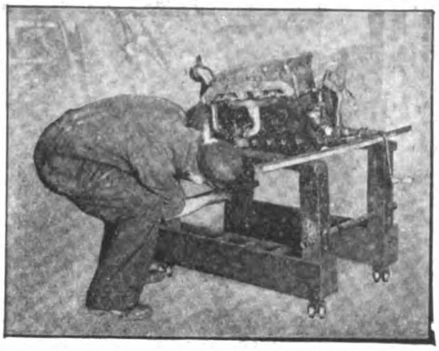
The LAWCO RIM TOOL

You can't remove tires as quickly *your* way as you can with the Lawco Rim Tool. Takes but *15 seconds* to adjust The Lawco and remove tire. Action always sure, no matter how hard the job.

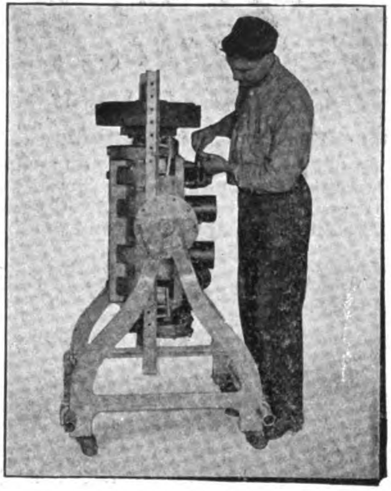
The Lawco's claws fit over rim, unlatching it and holding it contracted while tire is removed and replaced. Then, Rim is latched by putting Tool inside and expanding Rim by reversing lever. Three simple movements for both operations! Fits 50 types of cross split rims. Quickly adjustable to any size Rim. Made of forged steel, practically indestructible. Weighs 5½ pounds.

Send card for folder which illustrates, pictorially, the operation of The Lawco and shows how much time it will save in your shop and what an attractive article it is to sell to your customers

The F. H. LAWSON COMPANY
Dept. G. CINCINNATI, OHIO



THE OLD WAY
Expensive and Inefficient



THE CONTINENTAL WAY
Saves Time, Money and Labor

CONTINENTAL AUTO PARTS CO.
Continental
KNIGHTSTOWN, INDIANA U.S.A.

Would You Read Your Paper Upside-down?

Why ask your mechanics to stand on their heads to repair a motor?

—DON'T—

Install Continental Motor Stands Today

Catalogue on request!

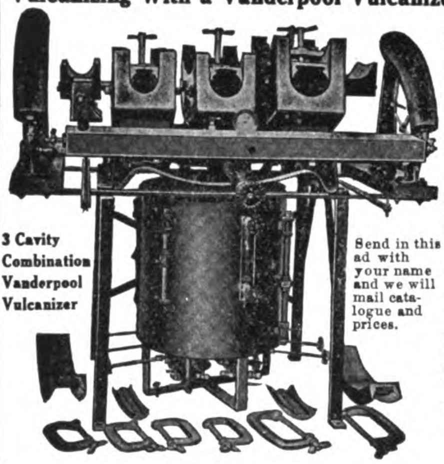
Push Your Business —

I'll Show You How to Increase Your Winter Trade.

THERE is business all around you. Good, profitable business that will bring in many an extra dollar. Don't wait for spring. Do business all winter. I'm helping garage men and supply dealers to do more business. I'll help you. Write on your business paper that you're ready for more business. I have nothing to sell but service backed by nine years' experience in promoting sales successfully.

Write
Edward W. Bacon
BACON SERVICE
151 Grand St., New York

Vulcanizing With a Vanderpool Vulcanizer Brings Big Profits



3 Cavity Combination Vanderpool Vulcanizer

Send in this ad with your name and we will mail catalogue and prices.

Here is an exceptional opportunity for Garages as well as Vulcanizing Companies to secure a vulcanizer that will turn out high-grade work at a small cost. The fuel saved alone will pay for the machine in a short time—then you will "cash in" on your investment. This plant, the Vanderpool Vulcanizer, is meeting with enthusiastic approval of hundreds of satisfied users all over the country. Unsolicited testimonials from the various companies now using the "Vanderpool" testify to the dependability, efficiency and economy of this "Vulcanizing Wonder." One man writes that the first month's profits paid for the plant. No experience needed—we teach you how. It occupies very little floor space, and "once bought, you will never have to buy again."

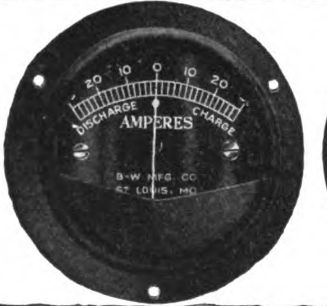
VANDERPOOL CO.
Springfield, Ohio

NEW DEPARTURE BALL BEARINGS

Strength
Stamina
Service

The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

B-W DIRECT CURRENT



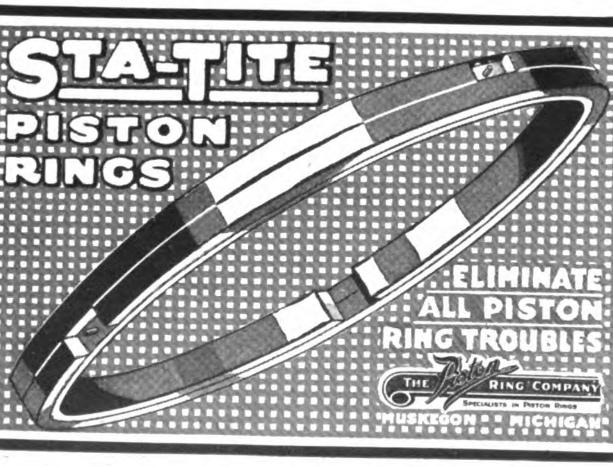
STURDILY CONSTRUCTED to retain accuracy under the most severe conditions. Handsome in appearance. Made in both flush and surface types. Finished in bright nickel or black rubberoid as desired.

Better Ammeters Cannot Be Purchased, PRICE.......$1.90

Send For Literature

Ballman-Whitten Mfg. Co.,
4440 Olive St. St. Louis, Mo

AMMETERS



STA-TITE PISTON RINGS

ELIMINATE ALL PISTON RING TROUBLES

THE Piston RING COMPANY
SPECIALISTS IN PISTON RINGS
MUSKEGON · MICHIGAN

WM. B. SCAIFE & SONS CO.
PITTSBURGH, PA.
BRAZED
AIR TANK

SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

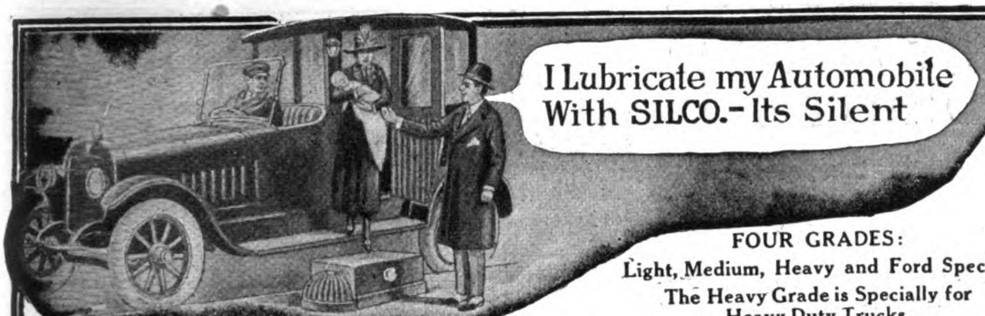
CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.



SMOOTH **AUTOMOBILE SILCO LUBRICANTS** AS SILK

FOUR GRADES:
Light, Medium, Heavy and Ford Special.
The Heavy Grade is Specially for
Heavy Duty Trucks.

SILCO is the perfect lubricant for transmission and differential gears. It possesses far greater lubricating properties than ordinary greases. It forms a positive and lasting cushion between all points of contact, and quiets noisy gears. Silco does not leak or drip, and its efficiency is unaffected by heat or cold.

SILCO minimizes friction, and eliminates expansion from heat, thus preventing undue wear on gears and bearings. Cuts repair bills and is guaranteed to afford entire satisfaction.

Jobbers and Dealers; Our inducements are extremely liberal.
Send for further lubricating facts and special trade discounts.

WRITE TODAY TO

INTERNATIONAL LUBRICANTS COMPANY
Manufacturers of SILCO Products

Home Office:
75 State Street, Boston. Mass.

New York Office:
51 East 42nd Street.

THE CONGDON & CARPENTER CO., Rhode Island Distributors, Providence, R. I.

LOOK FOR THIS TRADE MARK
IT PROTECTS THE DEALER AND CONSUMER

SILCO

TRANSMISSION AND DIFFERENTIAL GREASE
STOPS THE LEAKS
FINDS THE SQUEAKS
INSURES CAR SERVICE

Don't Chance Losing Your Ford

INSTALL A

New York "Security" Switch Lock

SECURITY
NEW YORK COIL COMPANY
CITY
MAG BAT

At $3.25

And Be Insured Forever

Our SWITCH LOCK looks better, gives greater protection, is easier sold and installed, than any other—bar none.

"A minute's inspection verifies our claims."

New York Coil Company
341 PEARL STREET, NEW YORK, N. Y.

Western Distributors:
GRAY-HEATH CO., 1440 Michigan Avenue, Chicago, Illinois

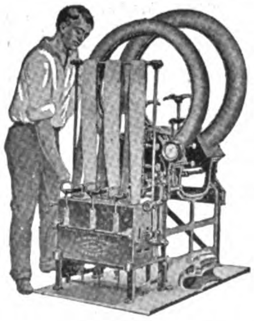
Do Tire Repairing
With the same equipment as used
By All Leading Tire Companies

Tire prices are soaring and a shortage is threatened; four million cars are wearing down tires every day, and more cars coming; motorists are practising thrift and having their tires repaired over and over again. All this means more business, bigger profits and a better future than ever for Tire Repairing.

Get into this money-making business with

Akron-Williams
TIRE REPAIR EQUIPMENT

Designed and perfected by America's leading tire engineers.
Used, sold and recommended by 100 Tire Companies.



You can start new in a small way as a separate business, or in a corner of store or shop, and add equipment as your business grows.

We make the largest and most complete line; there is an Akron-Williams outfit of every size, and a machine or tool for every purpose in tube or tire repairing.

Start right—with the most approved equipment—Akron-Williams.

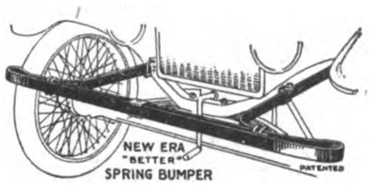
SEND FOR CATALOGUE AND FULL PARTICULARS

AKRON-WILLIAMS A-W PRODUCTS

THE WILLIAMS FOUNDRY AND MACHINE CO.
Ash Street Akron, Ohio

NEW ERA "BETTER" MOTOR REQUISITES

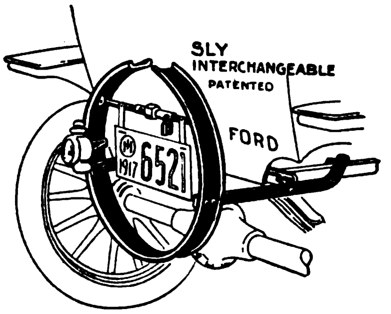
Interchangeable "Better" Spring Bumper



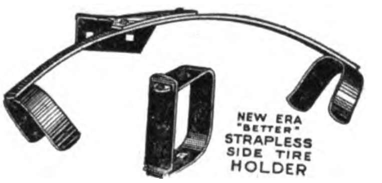
Stocking troubles eliminated. 93% of cars will take either Ratchet or Hook-On attaching arms. Permanent Guarantee. All Black, $10.00, or Black with Nickel bar, $11.50.

"Sly Perfect" Interchangeable Rear Tire Carrier

Outsold all others during 1917 and improved for 1918. For all Ford bodies and Chevrolet No. 490. Takes casing alone or on demountable rim. Keeping moisture out of casing. Holds by expansion grip on inside of rim. Single, $5.00; Double, $6.50.



New Era "Better" Strapless Side Tire Holder



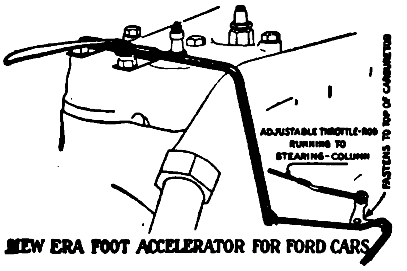
All steel — No Straps. Locking Device part of holder. Easy to slip tire in place—done in less time than to fasten straps.

Single, $2.00; Double, $3.00;
Extra Carrying Rim, if not demountable, $1.50.

New Era Ford Foot Accelerator

Makes the Ford "Pick Up" like other cars. No holes to drill, or machine work. No pulley, chain, belt or wire.

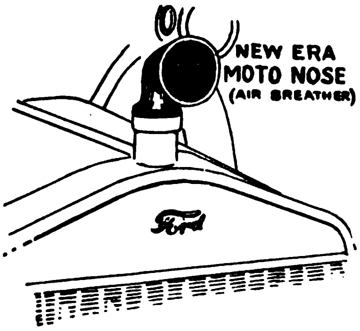
Complete, $1.25.


ADJUSTABLE THROTTLE-ROD RUNNING TO STEARING-COLUMN
FASTENS TO TOP OF CARBURETOR

NEW ERA FOOT ACCELERATOR FOR FORD CARS

New Era "Moto Nose" (Air Breather)

for Ford Cars.



Keeps water in radiator from getting too hot by taking cold air into radiator over surface of water. Just remove radiator cap and screw on "Moto Nose."

Black, $1.00.
Nickel, $1.50.

Write for Complete Catalogue

NEW ERA SPRING & SPECIALTY CO.

1177 Hamilton Ave., Grand Rapids, Mich., U. S. A.

DIXON'S

Dealer Electro Service

The biggest factor in developing your business is the service given your customers. With this in mind and realizing that it is difficult in a busy season to prepare advertising, we have prepared for your convenience a series of ten advertisements.

By catchy illustrations attention is attracted to them. Each is in electro form with ample space for your name.

DIXON'S
GRAPHITE
Automobile
LUBRICANTS

are being advertised in the newspapers of the big radiating centers throughout the country and also in farm and automobile papers. We are confident that the demand created by this advertising if backed by local dealers, will increase your sales of Dixon's Graphite Automobile Lubricants at a minimum expense.

Write us at once for proofs of these electros so that you can start your advertisements now. Please address Dept. 49-G.

Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

Established 1827

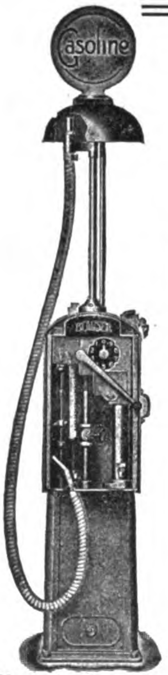


Figure 241—a one gallon measuring pump for curb use.

BOWSER
ESTABLISHED 1885

OIL and GASOLINE STORAGE SYSTEMS

ALWAYS on the job; safe; rapid and efficient in operation; clean and attractive; time and labor savers; business producers.

The pump with business qualifications.

Write for Booklet 4.

S. F. Bowser & Co., Inc.
Ft. Wayne, Indiana, U. S. A.

MORE JOBBERS

WHO HANDLE

G. H. DYER CO.'S PRODUCTS

NOTED FOR

Long Service. *Attractive Prices.* *High Efficiency.*

Chapin-Owens Co.,
Rochester, N. Y.
Campbell Iron Co.,
St. Louis, Mo.
Carolina Tire & Acces. Co.,
Columbia, S. C.
Dine-De Wees Co.,
Canton, O.
Davis-Brown El. Co.,
Ithaca, N. Y.
The Equipment Co.,
Kansas City, Mo.
C. D. Franke Co.,
Charlestown, S. C.
M. L. Foss,
Denver, Col.
Foster Auto Sup. Co.,
Denver, Col.
The Great West Saddlery Co.,
Winnipeg, Canada.
General Motor Supply Co.,
Altoona, Pa.
Gaul, Deer & Shearer Co.,
Philadelphia, Pa.
Geller, Ward & Hasner Co.,
St. Louis, Mo.

C. W. Greene Co.,
Tampa, Fla.
Jos. E. Green & Co.,
Boston, Mass.
Goodby-Rankin Co.,
Providence, R. I.
Harbison & Gathright Co.,
Louisville, Ky.
W. J. Holliday Co.,
Indianapolis, Ind.
Henry Horton,
New Haven, Conn.
P. R. L. Hardenberg,
St. Paul, Minn.
Holland-Baden-Ramsey,
Baltimore, Md.
Herring Motor Co.,
Des Moines, Ia.
Hagberg Auto Supply Co.,
Wichita, Kan.
Johnstown Auto Co.,
Johnstown, Pa.
King Hdw. Co.,
Atlanta, Ga.
Ko-Mo Supply Co.,
Charlotte, S. C.
Paxton & Gallagher Co., Omaha, Neb.

Linscott Supply Co.,
Boston, Mass.
John Millen Co., Ltd.,
Montreal, Canada.
Motor & Machinists Supply Co.,
Kansas City, Mo.
Motor Car Equipment Co.,
Boston, Mass.
Minneapolis Iron Store,
Minneapolis, Minn.
C. S. Mersick Co.,
New Haven, Conn.
R. W. Norris Co.,
Baltimore, Md.
Nicols, Dean & Gregg,
St. Paul, Minn.
Owens-Merritt Co.,
Danville, Va.
Orr Iron Co.,
Evansville, Ind.
Oliver H. Van Horn Co.,
New Orleans, La.
Post & Lester Co.,
Hartford, Conn., and all branches.
Powell Supply Co.,
Omaha, Neb.

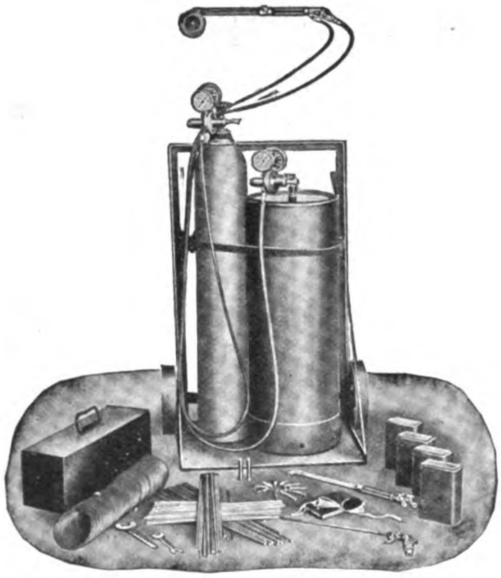
High Grade Ford Type Pistons.

Standard and Oversized.

Accurate dimensions, high finish, step cut rings, uniform weight.

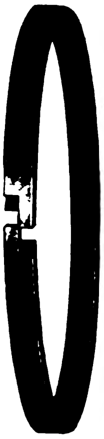
Rebabbitting Jig.

Rebabbitt Ford connecting rod bearings quickly at small cost.



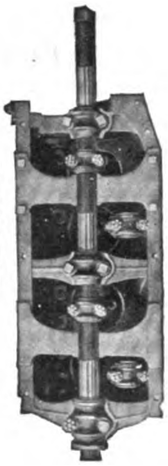
Style B Oxy-Acetylene Welding, Cutting and Decarbonizing Outfit.

Will handle any class of work quickly and efficiently. Used by many of the largest manufacturing and engineering concerns and in Navy Yards, Army Depots and Training Schools.



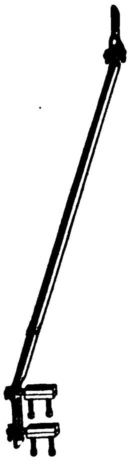
Taylor Leakage Proof Ring for Fords

***List* 50c**



Connecting Rod and Main Bearing Reamer.

A reamer which will **accurately** line and size Ford connecting rod and main bearings.



Towford enables one man in a Ford to safely tow and accurately steer one or two other Fords.

NOTICE! **We are publishing the names of all jobbers handling our products in this space—June, July and August. If your jobber does not handle or won't supply DYER PRODUCTS, *write us.***

THE G. H. DYER Co., - - Cambridge, Mass.

Announcing a Complete Circuit of Service

Official factory records—

Genuine parts for repairs or replacements—

Expert factory trained workmen to make these repairs and adjustments—

An organization whose sole object is the rendering of service on Delco, Klaxon and Remy electrical equipment—

This is United Motors Service Inc.

On July 1st all the field service of the manufacturers of Delco, Klaxon and Remy was absorbed by United Motors Service Inc.

This organization now consists of six branches where you may obtain repairs or replacements on Delco, Klaxon and Remy electrical equipment; five branches and fifteen service stations rendering service on Remy only; 66 service stations giving service on Klaxon exclusively.

We are rapidly developing these and other units to furnish our threefold service and bring it within reach of everyone interested in these equipments.

THE DAYTON ENGINEERING LABORATORIES CO. STARTING LIGHTING IGNITION DELCO DAYTON, OHIO

Delco

KLAXON

CONSTANT REMY SERVICE

REMY

MotorsService

Trade Mark

United Motors Service Inc.

GENERAL OFFICES:

Detroit **Michigan**

Delco, Klaxon and Remy Direct Branches in the following cities:

Kansas City
Chicago
Detroit
Los Angeles
San Francisco
New York

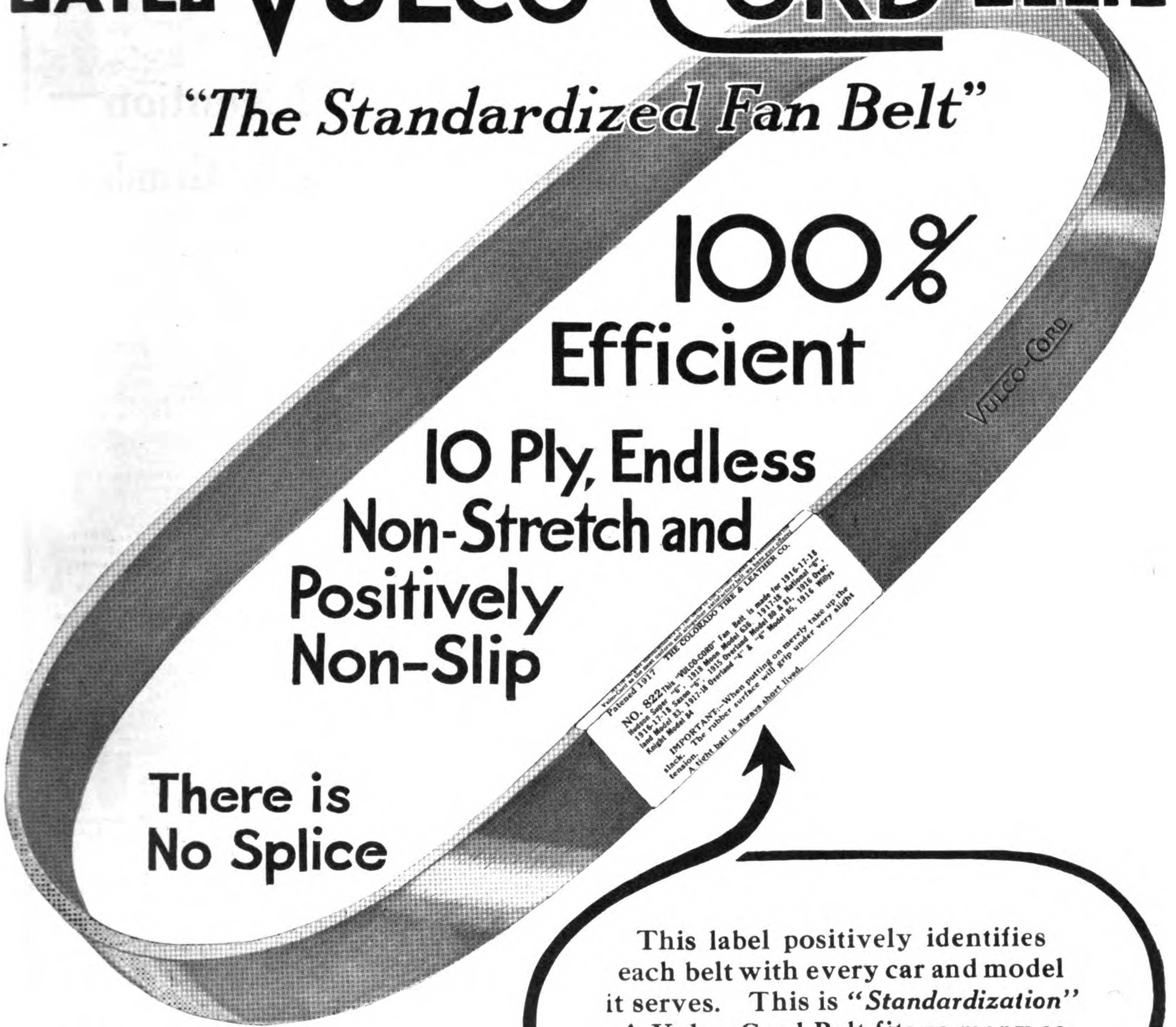
Remy Direct Branches in the following cities:

Denver
Minneapolis
Cleveland
Boston
Atlanta

15 cities in which there are Remy Service Stations
66 cities in which there are Klaxon Service Stations

GATES VULCO-CORD BELTS

"The Standardized Fan Belt"


100% Efficient
10 Ply, Endless
Non-Stretch and
Positively
Non-Slip
There is
No Splice
VULCO-CORD
Patened 1917 THE COLORADO TIRE & LEATHER CO.
NO. 822 This "VULCO-CORD" Fan Belt is made for 1916-17-18 Hudson Super "6", 1918 Moon Model 636, 1917-18 National "6", 1916-17-18 Saxon "6", 1915 Overland Model 80 & 81, 1916 Overland Model 83, 1917-18 Overland "4" & "6" Model 85, 1916 Willys Knight Model 84
IMPORTANT:—When putting on merely take up the slack. The rubber surface will grip under very slight tension.
A tight belt is always short lived.

This label positively identifies each belt with every car and model it serves. This is "*Standardization*" A Vulco-Cord Belt fits as many as 12 different makes and models.

Patented in U. S. and foreign countries

You can double your Fan Belt Business

85% of the Fan Belt Business, outside of Ford sizes, has been handled through the car manufacturers because you could not afford to stock individual belts for more than 2 or 3 out of the 184 well-known makes and models of cars. You now can get *this* business—which rightly belongs to you—by selling the *Standardized* Fan Belt.

A Gates Vulco-Cord Belt is built like a cord tire. It is ten-ply, endless, double strength and non-stretch. It positively grips the pulley and there is no slip—100% efficient.

246 jobbers stock them and over 20,000 dealers are selling them, because they can serve every car in their territory from a stock of only 8 or 9 standardized sizes.

Order the "Standardized" Fan Belt from your jobber.

"The Best Fan Belt We Have Ever Made"

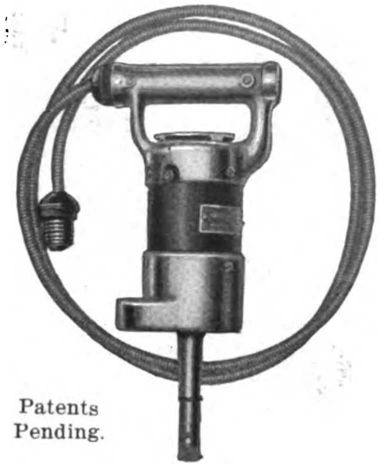
The Colorado Tire and Leather Company, Denver

WORLD'S LARGEST MAKERS OF FAN BELTS

THE BIGGEST FACTOR IN BUSINESS TODAY IS LABOR

Any method or device that will replace hand labor, that will increase production and lower labor costs is eagerly sought—so

—Necessity Being the Mother of Invention—



Patents Pending.

The Stenman Electric Valve Grinder

was produced and because the need for it was great, it met with instant success.

No impossible, absurd or astounding claims were ever made or were necessary. The Stenman Valve Grinder won the verdict on its ability to fill an existing want.

Just read a few of the many indorsements we have received, which we print below. The U. S. Government, Municipal Departments, private owners, car and truck makers, distributors and service stations are all represented. These are verbatim copies from our files and should convince anyone that a STENMAN VALVE GRINDER is a badly needed tool in every repair shop.

Phone, wire or write your jobber or us TODAY. But insist on getting a STENMAN. It is the only Valve Grinder "that has stood the gaff." If it does not make good to you we will.

From Office Chief Engineer. **War Department, Scott Field. Belleville, Ill., July 1, 1918.**

Report on file, made to Chief Signal Officer, Washington, D. C.

"Valve Grinder has been tested and found very satisfactory. Consider it a great labor saver. Recommend its use generally."

Signed, J. R. FECHET, Lt. Col., A. S. S. C., Commanding.

The above indorsement was signed by the Commanding Officer of this field and is a direct copy from our files.

A. J. ETHERIDGE, Capt. Signal Corps, U. S. A.

Newport, Vt., July 11, 1918.

The Valve Grinder has proved a great success. It has only been used on private work, but has proved too valuable to let go. **G. H. PROUTY, Governor of Vermont.**

Boston, Mass., July 16, 1918.

The Stenman Electric Valve Grinder fills a long felt want. It sure does the work in jig time. The best selling garage tool we have handled this year.

LINSCOTT SUPPLY CO. By Fred Linscott.

Washington, D. C., July 14, 1918.

Your Stenman Valve Grinder is "the goods." We sold 12 the past three days. Rush another shipment and more printed matter.

CHAS. RUBEL & CO., By R. A. Siegel, Dist. Mgr.

Philadelphia, Pa., July 16, 1918.

We are more than pleased with the Stenman Electric Valve Grinder and we are more than pleased with the treatment that your company has given us.

MANUFACTURERS SUPPLIES CO., By Wm. Holt.

Kansas City, Mo., July 7, 1918.

Your Valve Grinder seems to give general satisfaction. We like to recommend it to our trade.

THE EQUIPMENT CO. By W. S. Reed.

Milwaukee, Wis., July 16, 1918.

The Grinder which you shipped to us some time ago is now being used in our service station and is giving satisfactory service.

STERLING MOTOR TRUCK CO. By G. Hasselreiter.

Springfield, Mass., Jan. 19, 1918.

The two Valve Grinders bought of you are in use in our service station and are giving perfect satisfaction. I have no hesitancy in recommending them very highly.

HARRY K. SMITH, Ford Distributor.

Boston, Mass., Jan. 15, 1918.

We have tried out the Stenman Valve Grinder recently bought of you and found it very satisfactory and feel safe in recommending it.

BEACON MOTOR CAR CO. N. E. Distributors Peerless Cars.

Baltimore, Md., April 9, 1918.

We have two Stenman Electric Valve Grinders at work in our service station. We find them a great saver of time and they do better work than can be done by hand. We are glad to recommend it.

ZELL MOTOR CAR CO. A. S. Zell, Pres.

Bangor, Me., July 16, 1918.

Your Valve Grinder fills a long felt want and we do not hesitate to recommend it to anyone having valve grinding to do.

BANGOR MOTOR CAR CO. E. Y. Eldredge, Mgr.

Keene, N. H., July 15, 1918.

We have never had an equipment of any nature in our garage which has given such complete satisfaction as the Stenman Valve Grinder. We really cannot say enough in its favor. At the same time we cannot forget the excellent service we have received from you in connection with your product.

DODGE MOTOR CAR CO. By Louis E. Roundy.

Boston, Mass., July 12, 1918.

The Stenman Valve Grinders installed in our service station give excellent satisfaction, and are one of the greatest helps that we have. With your machine most any man can grind valves, which is a great help under present conditions. The time saved is almost incredible and the work is far superior to hand work.

DANIELS AND VELIE AGENTS. By J. W. Bowman, Treas.

Boston, Mass., July 13, 1918.

Your Valve Grinder is as represented. It saves time in the work and is a valuable repair shop tool.

CITY OF BOSTON, PUB. WORKS DEPT.
George H. Finneran, Gen. Foreman.

Winsted, Conn., July 4, 1918.

Your Electric Valve Grinder is a "Wonder." We are doing double the work and making our trade happy. We would not be without it for five times its cost.

ROSCOE BENJAMIN. Cadillac Distributor.

Worcester, Mass., Dec. 26, 1917.

We would not accept considerable more money than we paid for the Stenman Valve Grinder if we could not get another. We have been using the machine since Oct. 1, 1917.

WALKER ICE CO. By B. E. Bruso.

Springfield, Mass., Jan. 22, 1918.

We wish to advise that the Stenman Valve Grinder has proved satisfactory to us and we intend to continue using the same.

STUDEBAKER CORP. OF AMERICA. By J. M. Matson, Mgr.

Worcester, Mass., July 10, 1918.

We purchased one of your Valve Grinders and find it a great time saver and indispensable to any one who looks after their own cars.

WORCESTER COUNTY JAIL. By A. F. Richardson, Sheriff.

Taunton, Mass., Jan. 11, 1918.

Kindly send us another Valve Grinder as we find the first one of great assistance in our repair department.

S. & M. GARAGE. Dodge Distributors.

Hartford, Conn., Jan. 10, 1918.

We are glad to recommend the Stenman Grinder to anyone contemplating the purchasing such a tool.

THE PALAVE GARAGE. By E. B. Barnard.

Boston, Mass., Feb. 23, 1918.

We find the Stenman Valve Grinder a tool that the auto repair shop has been looking forward to for years. It is a great time and money saver.

PAIGE DETROIT CO. OF N. E. E. D. Wright, Service Mgr.

Worcester, Mass., Feb. 16, 1918.

Your machine has developed no mechanical trouble. The mechanics are free to use it and we believe that it will be a great time saver in our valve grinding operations.

LIVINGSTON MOTOR CO. Ford Distributors.

Springfield, Mass., Feb. 23, 1918.

We have at this date had one of your Valve Grinders in use for about two months and the service given has been satisfactory in every way.

BYRNES-ELDREDGE MOTOR CO., INC. Ford Distributors.

New York City, Jan. 29, 1918.

We have used your Grinder for some time past and are pleased to say that it has given complete satisfaction.

W. J. B. MOTOR CO. Distributors Republic Trucks.

Springfield, Mass., Jan. 28, 1918.

The Stenman Electric Valve Grinder has proved to be a very important addition to our tool equipment. We are glad to recommend it.

HARRINGTON-GIFFORD CO. Hudson Distributors.

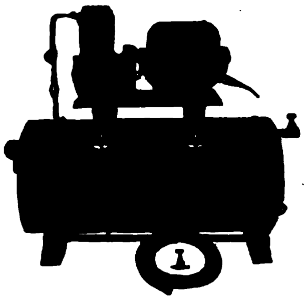
The Stenman Electric Valve Grinder Co., Inc.

42 Southbridge Street
Worcester, Mass.

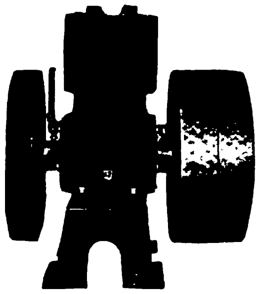
O.K.
WE USE A BRUNNER AIR COMPRESSOR
FREE AIR
FOR YOUR CONVENIENCE

"*The Garagemans O.K.*
is behind the Brunner Sign"

The Brunner Sign has been consistently demonstrating its wonderful advertising value to the garageman for many years. Thousands of garagemen who have been rendering Brunner Service and have been advertising the fact by displaying the Brunner Sign know that the Brunner Sign is recognized by the Brunnerwise motorist as a sure sign of a compressed air service that always satisfies.

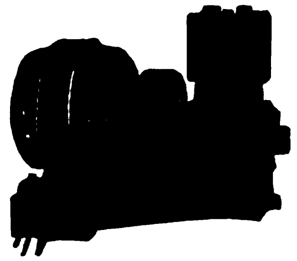


Install a BRUNNER Air Compressor

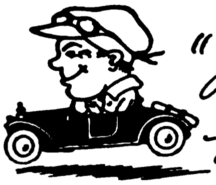


Just now in these war times labor is scarce and labor saving equipment is playing a big part in the economical administration of every business.

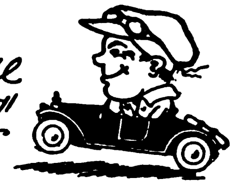
A Brunner Automatic Air Compressor would save you many hours' time each week because it is a high class, thoroughly dependable equipment that delivers the goods—it requires no attention whatever aside from an occasional oiling, and automatically maintains an adequate supply of compressed air continuously—no waiting—no complicated attachments to help motor carry the load—no restriction of the lubrication.



YOU CANNOT GO WRONG WITH A BRUNNER AIR COMPRESSOR, because every one sold is backed up with the guarantee of the manufacturer as well as the Brunner Jobber that it will do the work for which it is recommended and that it will be found exactly as represented.



"*The Motorist who is Brunnerwise*
knows Brunner Service Satisfies"



Write for No. 15 Catalogue and the name of the Brunner Jobber covering your territory. Get acquainted with the Brunner line.

BRUNNER MANUFACTURING COMPANY

General Offices and Plant:
Utica, N. Y.

Cincinnati Branch:
Cincinnati, Ohio.

R. S. Lane
President

A. K. Hebner
General Manager

BEARINGS SERVICE COMPANY

D. H. Torrey
Sales Manager

H. J. Detterich
Advertising Manager

An Expert Service Organization Nation-Wide in Scope

BEARINGS SERVICE COMPANY

A service that is "expert" in all that the word implies—

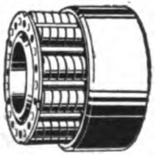
—has been responsible for the amazing growth of the Bearings Service Company.

After one year this concern is operating twenty-two branches in the leading motor car centers and has more than 500 distributors.

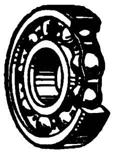
A force of thoroughly trained engineers, complete manufacturing records, and a stock of Timken, Hyatt and New Departure Bearings are facilities at each branch.

This concern is able to supply motorists with new bearings for repairs and replacements without any inconvenience to the motorist.

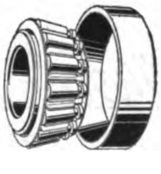
The Bearings Service Company is the national authorized service representative for the manufacturers of Timken, Hyatt and New Departure Bearings.



Hyatt



New Departure



Timken

Branch Managers

N. J. Fitch **Atlanta**
H. R. Coxe **Boston**
W.H. Richardson **Chicago**
L. H. Dodd **Cleveland**
W. R. Herring **Dallas**
G. M. Flyum **Denver**
R. B. Campbell **Detroit**
J. L. Goodall **Indianapolis**
R. F. Meister **Kansas City**
D. B. Bevier **Los Angeles**
R. M. Williams **Minneapolis**

C. T. Barbour
Purchasing Agent

L. V. Cady
Auditor

BEARINGS SERVICE COMPANY

J. W. Owen
Traffic Manager

L. M. Baker
Manager Rim Dept.

Now Enlarges its Field to Include

RIM SERVICE

This nation-wide perfectly working service organization is now offering to motorists, dealers and garagemen a complete service on RIMS.

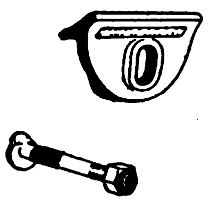
No matter what make or model car—if it is equipped with Detroit, Baker, Perlman or any similar type of rims—the owner can now get new rims in the time it takes to change a tire.

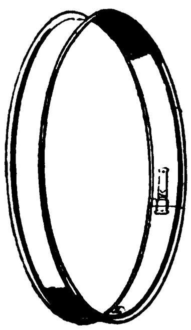
This is the first time that a country-wide service on rims has ever been offered to the motoring public and those who have had occasion to become acquainted with the class of service rendered by this company will realize that it is to their advantage to avail themselves of this new Rim Service.

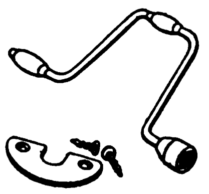
In every important motor car center there is "Rim Service" just around the corner from you.

Twenty-two Branches

General Offices Detroit

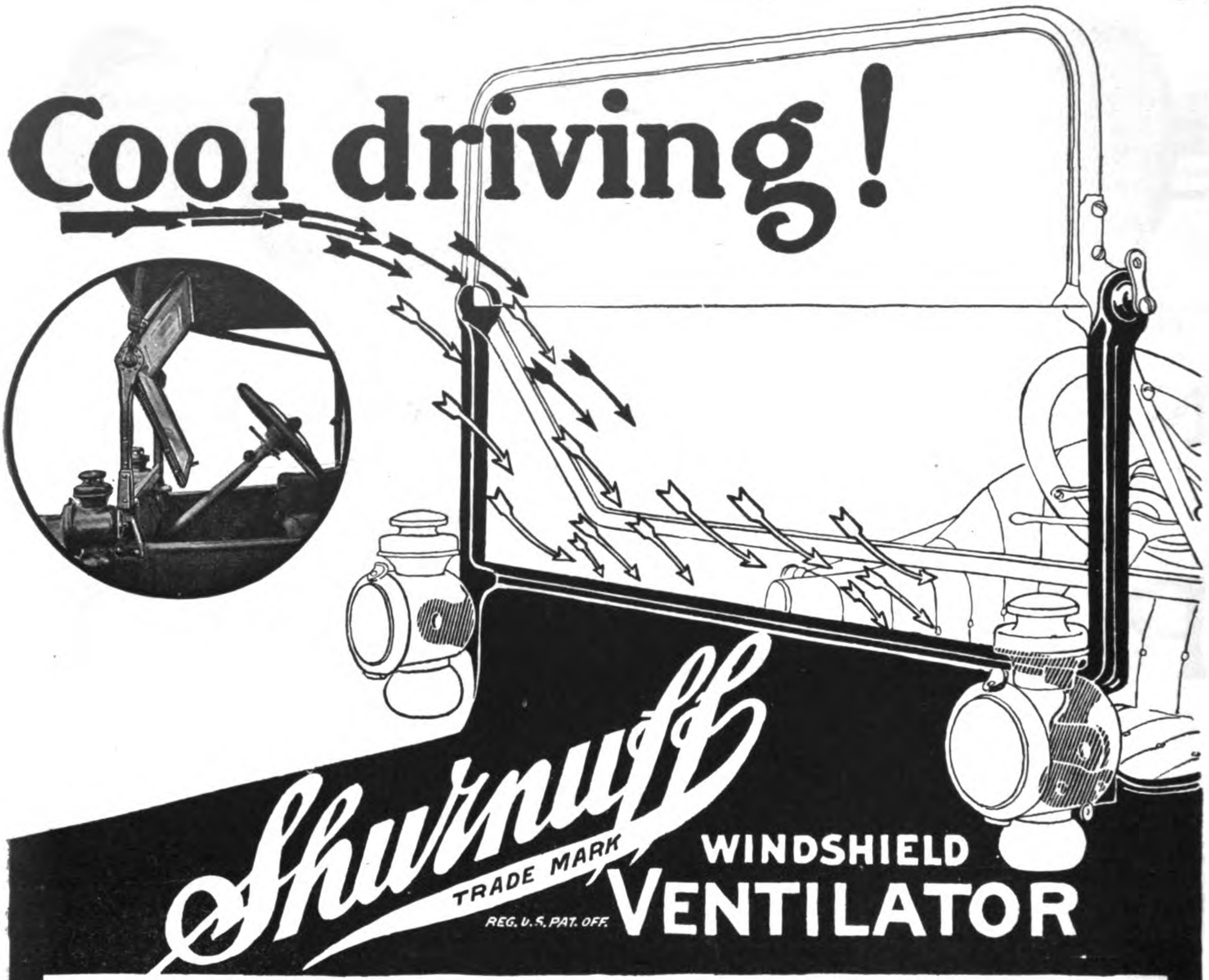






Branch Managers

N. B. Keller	R. S. Tuttle	W. C. L. Hodgson	L. H. Ward	C. M. Fox	R. H. Cross	G. G. Ballagh	L. A. Johnson	C. R. Jones	R. P. Gosslee	M. J. Shortt
New Orleans	**New York**	**Omaha**	**Philadelphia**	**Pittsburgh**	**Portland, Ore.**	**Rochester**	**San Francisco**	**St. Louis**	**Seattle**	**Toronto**

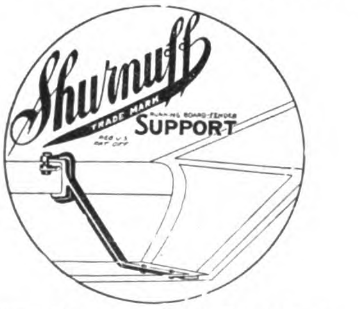


Are You Handling This Fast Selling Ford Fixture ?

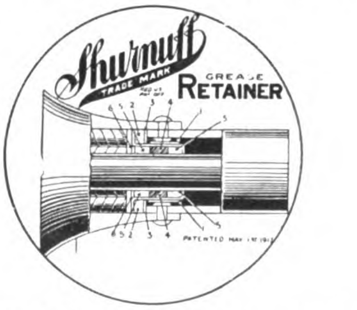
You don't have to be told how hot it gets in the front part of a Ford in summer and how much every Ford owner wishes he could open the windshield from the bottom and bring the breezes down to his feet and legs. In the Shurnuff Ventilator Windshield you can offer Ford owners all the ventilating and rain and dust-tight features that are given by the windshields of high priced cars. It consists of two black enameled uprights so shaped as to make the sides of the windshield rain-proof. A metal and rubber strip fastens to the cowl and makes it rain-proof at the bottom also.

Can be installed in 30 minutes.
The Ford owner can do the work.

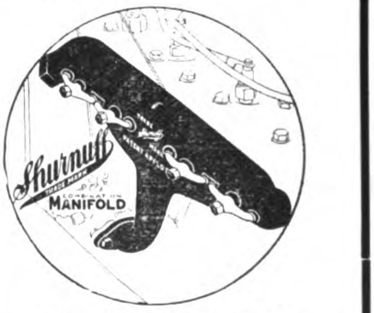
Each Ventilator set is packed in a labeled carton and makes a good showing on the shelf. Six sets are packed in a dealer's case. Price retail per set complete $7.50, $7.75 west of Rockies, $11.25 in Canada. Order a half dozen cases from your jobber today—



Shurnuff Running Board Fender Support stops sagging of running board, eliminates excessive vibration of front fender, reduces shocks and stabilizes the car. Needed on all Fords. Saves battery from damaging vibration. **Price per pair $4.50. West of Rockies $4.75. In Canada $6.75.**



Shurnuff Grease Retainers. Grease leaking from rear axle of Fords rots the tires, causes brakes to lose their efficiency and makes a dust-collecting mess on wheels, brake and axle housing. The Shurnuff **effectively** stops these grease leaks. **Price per pair 90c. In Canada $1.35.**



Shurnuff Combination Manifold combines intake and exhaust so that heat from latter dries incoming gasoline and vaporizes it perfectly. Result: Smoother running, more power, more miles per gallon, less carbon. **Price $9. West of Rockies $10. In Canada $12.50.**

DEALERS: Shurnuff Necessities for Ford cars are sure-enough fast sellers. All guaranteed. All packed in attractive cartons for shelf display. Carried by jobbers everywhere. Write for literature.

SHURNUFF MFG. CO., Dept. E, ST. LOUIS, MO.

Sales Dept. The Zinke Co.
CHICAGO, ILL.

When Your Spring *Breaks* Put On

VULCAN

QUALITY

The Replacement Spring

That's the message now being carried to millions of car-owners through the pages of National publications such as:

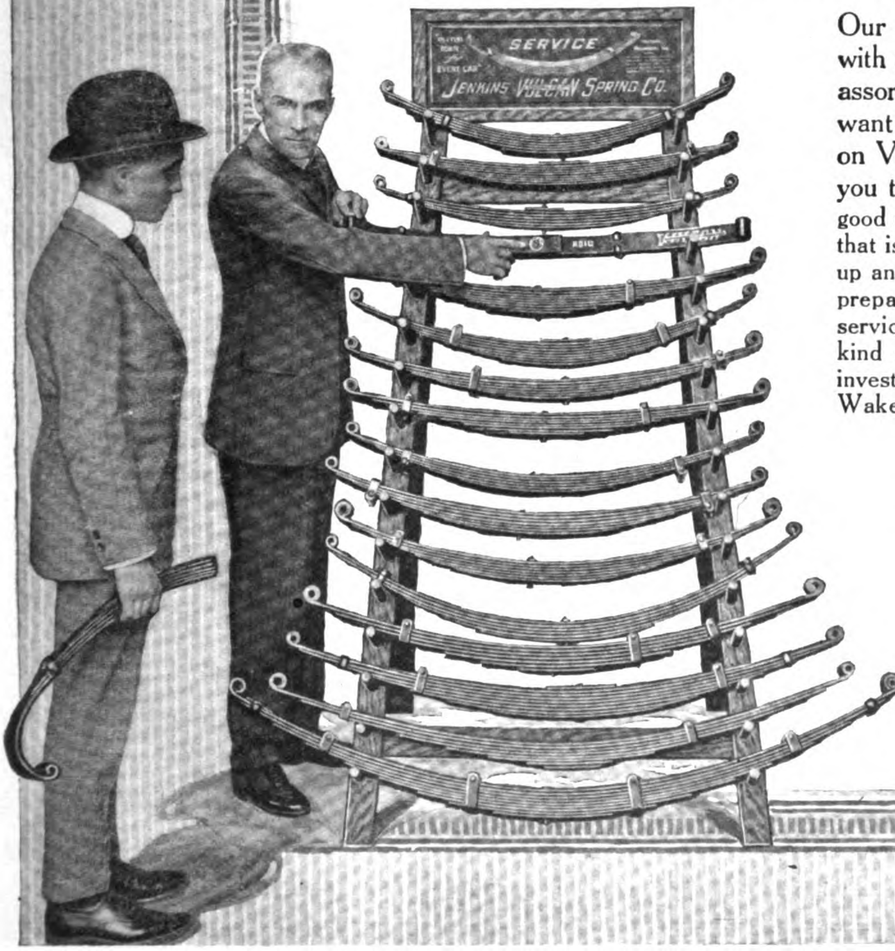
Saturday Evening Post,
Colliers Weekly,
Leslies Weekly,
Automobile Blue Book
and all Trade Papers.

To Dealers: You **need** this display rack full of **quick-selling,** replacement Vulcan Springs—and you need it **now.**

If you are one of the 3,000 live dealers who already have it, see that your stock is complete. Order what is short.

Here is something you want—

Real Profit With Small Investment



Our display rack is FREE to you with an order for one dozen or more assorted Vulcan Springs. Owners want service. They are already sold on Vulcan Springs. Now it's up to you to cash in on this advertising and good reputation and pocket the big profit that is yours. When the car owner drives up and asks you to "put on Vulcan"—be prepared. He wants **service**—real service. Give it to him. You need this kind of profit that requires no growing investment. Vulcan Springs move fast. Wake up!

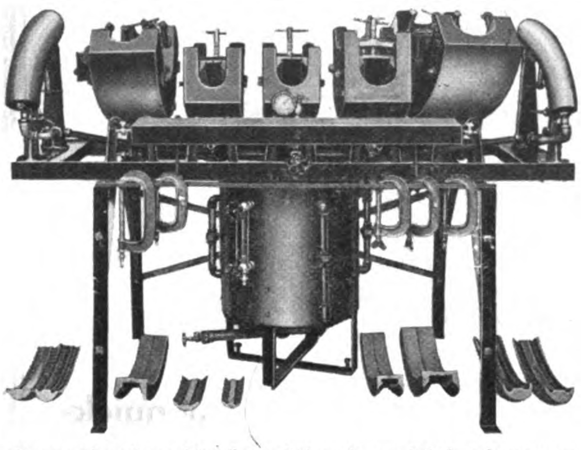
Write Today for Our Spring Rack Proposition.

JENKINS VULCAN SPRING CO.

Richmond, Ind.

Factory Branches

St. Louis, Missouri	1402 Chestnut Street
Minneapolis, Minn.	1024 Hennepin Ave.
Dallas, Texas	209 South Houston St.
Reading, Pa.	538 Franklin Street
Sumter, S. C.	29 Caldwell Street



BUILD UP BIG BUSINESS-MAKE BIG MONEY

Open a Tire Repairing Shop, the great money making business of the age. Work will pour in. Men starting without experience — now making big money. We instruct you free. Outfit pays for itself. We have splendid vacancies to fill. Golden opportunity.

Illustration shows Vanderpool 5 cavity model that does every kind of repairing ($100.00 worth a day). Also made in 2 and 3 cavity (smaller) size.

Price of new tires going up so high, car owners MUST have old tires repaired. But be sure—get the RIGHT outfit. There is but one that operates upon CORRECT principle—the

VANDERPOOL VULCANIZER

Only vulcanizer recommended by leading Tire factories because the only one that repairs tires EXACTLY AS THEY WERE MADE. The VANDERPOOL is the vulcanizer now bought by VETERAN Tire Repairers after trying other makes and DISCARDING them. Cheapest of all to operate. Write for Free Book of instructions. Tells everything. Testimonials from Vanderpool users now making big money. Get into business for yourself. Be independent!

In answering address Dept. B.

THE VANDERPOOL CO., Springfield, Ohio

Don't Have the Constant Fear of Losing Your Job

GARAGE REPAIR SET
FOR FORD CARS
GTD
No. 2501

GTD

For "Every Other Car"

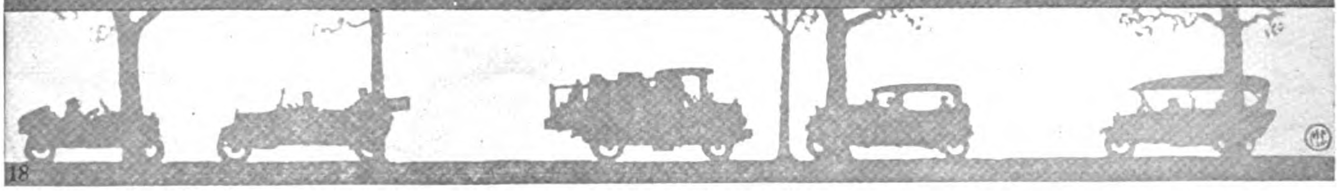
Here is a complete Automobile Screw Plate for Ford cars, consisting of Taps, Dies, Reamers, Stocks, Tap Wrenches fitted for the requirements of the Ford. It is called a Garage Repair Set, but is equally valuable to the dealer and car owner—in fact every one who has occasion to care for a Ford car can use and needs this set. It is furnished in a well made wooden box, handy for general use and to carry on the road to repair jobs.

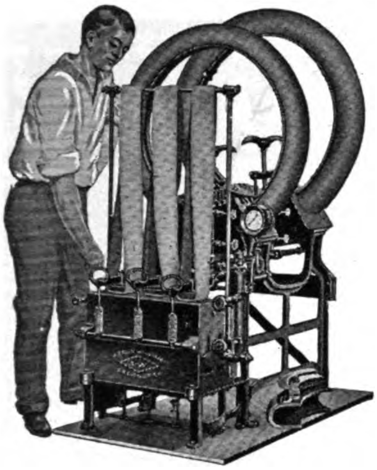
As Ford led in standardized production of automobiles, so has G. T. D. led in the standardization of screw threads. This set consists of selected G. T. D. products to fit the Ford requirements. It is a sound investment, as proven by the large numbers sold and in use.

On sale by the best dealers—write us for particulars and catalog.

GREENFIELD TAP & DIE CORPORATION
Greenfield Massachusetts, U. S. A.

New York, 28 Warren St. Chicago, 13 South Clinton St.
Canadian Plant, Wells Brothers Company of Canada Limited, Galt, Ontario.





This Machine will keep the

PROFITS

coming in all the year 'round

Do Tire Repairing

as a new business, or in a corner of your store or garage; get your share of this steady, profitable and increasing business that now passes your doors.

War-time economy and the rising prices of new tires are compelling car owners to keep their tires and tubes repaired over and over again to give the utmost mileage. Tire-repairing like motoring goes on all during the year.

Get on the **Profit Side** of present conditions by starting a tire repair business with

Akron-Williams

TIRE REPAIR EQUIPMENT

Designed and Perfected by the Foremost Tire Engineers. Used and Sold by over 100 Leading Tire Companies.

You can Start in a Small Way with small capital and add equipment as your business grows. There's an Akron-Williams outfit for every size shop and a machine or tool for every purpose in tire and tube repairing. No equipment is too large for us—no tools too small.

Complete Instruction in All Branches of tire and tube repairing is arranged for Akron-Williams users under the personal direction of experts in the big tire factories—and we help you locate where opportunities are best.

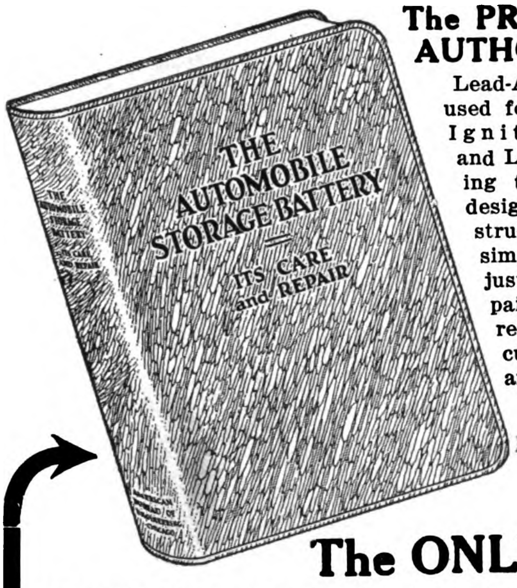
PROMPT SHIPMENTS

Write today for Catalog and full information.

AKRON-WILLIAMS
A-W
PRODUCTS

THE WILLIAMS FOUNDRY AND MACHINE CO.

Ash Street **Akron, Ohio**



The PRACTICAL AUTHORITY of

Lead-Acid Batteries used for Automobile Ignition, Starting and Lighting, covering the theory of design and construction. In a simple way tells just how to repair, restore and rebuild to secure full power and efficiency.

The ONLY

BOOK that deals extensively of all repairs that can be practically made, written by an experienced engineer with the aid of many expert repairers.

It Deals with Batteries

from every viewpoint. The novice can read and understand, as well as the engineer. The most complete information ever published. Invaluable for repairers in every battery garage or service station.

Special Instructions

for different types of batteries in general use.

The book contains 280 pages, with 186 illustrations, graphs and charts, the section devoted to Rebuilding has 131 cuts, many from special photographs, detailing repair methods.

5 Days Free examination and refund of purchase price if not satisfactory.

HANDSOMELY BOUND IN FLEXIBLE LEATHER COVER.... $5.00

Published by

THE AMERICAN BUREAU OF ENGINEERING, Inc.
1032 So. Wabash Ave.
Chicago, Ill.

TEAR COUPON OFF AND MAIL BACK

Date................19

The American Bureau of Engineering, Inc.,
1032 So. Wabash Ave., Chicago, Ill., U. S. A.

You may send me at once one copy of **The Automobile Storage Battery**, for which you will find enclosed

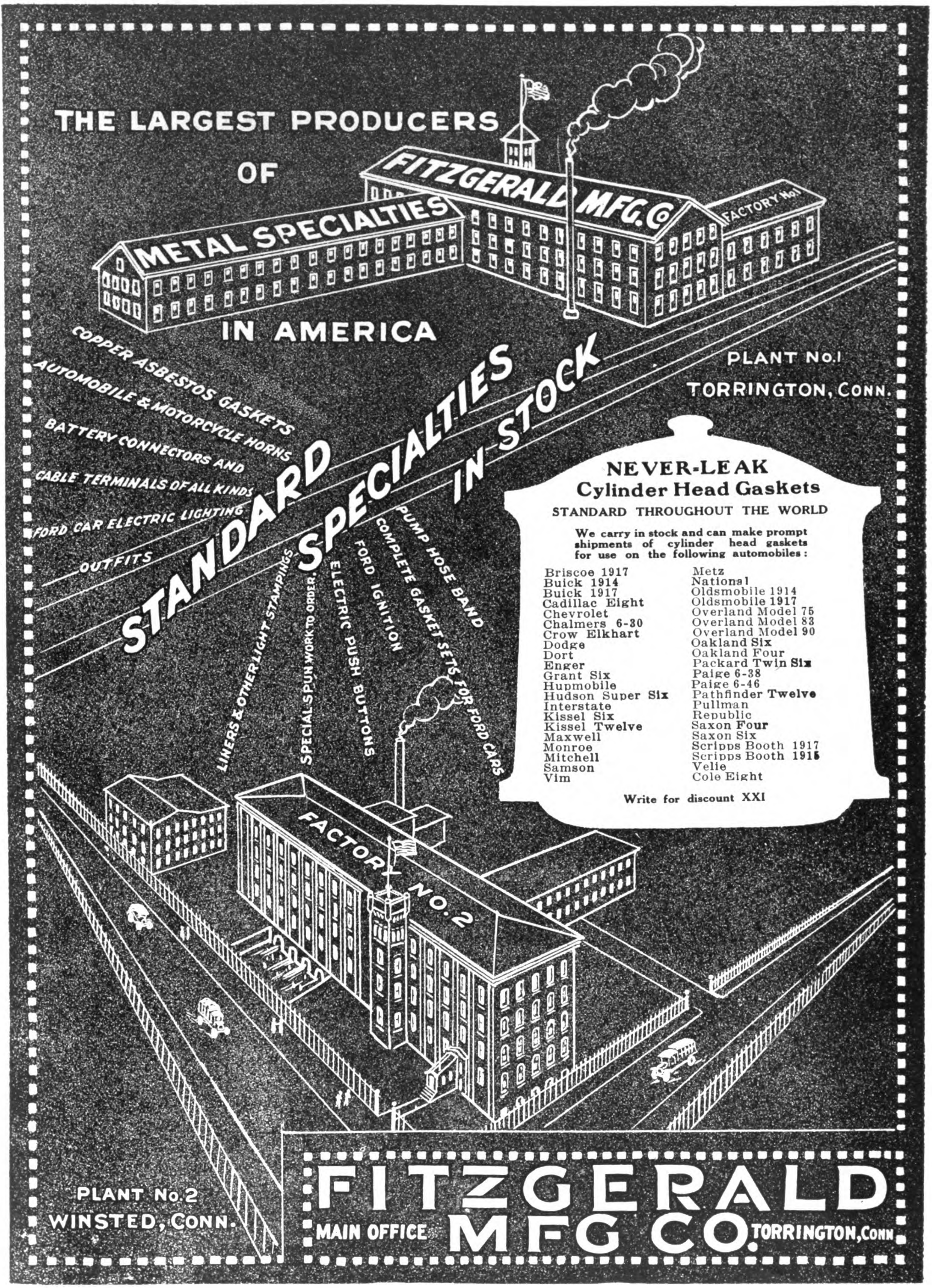
Check
Money Order } For Five ($5.00) Dollars.
Draft

It is understood that if the book is not entirely satisfactory to me, I may return it within five days at your expense and you will refund my money. I am the judge as to satisfaction.

....
Signature

....
Place

....
Street and Number


THE LARGEST PRODUCERS
OF
METAL SPECIALTIES
IN AMERICA
FITZGERALD MFG. Co
FACTORY No.1
PLANT No.1
TORRINGTON, CONN.
COPPER ASBESTOS GASKETS
AUTOMOBILE & MOTORCYCLE HORNS
BATTERY CONNECTORS AND
CABLE TERMINALS OF ALL KINDS
FORD CAR ELECTRIC LIGHTING
OUTFITS
STANDARD SPECIALTIES IN STOCK
LINERS & OTHER LIGHT STAMPINGS
SPECIAL SPUN WORK TO ORDER.
ELECTRIC PUSH BUTTONS
FORD IGNITION
COMPLETE GASKET SETS FOR FORD CARS
PUMP HOSE BAND
FACTORY No.2
PLANT No.2
WINSTED, CONN.

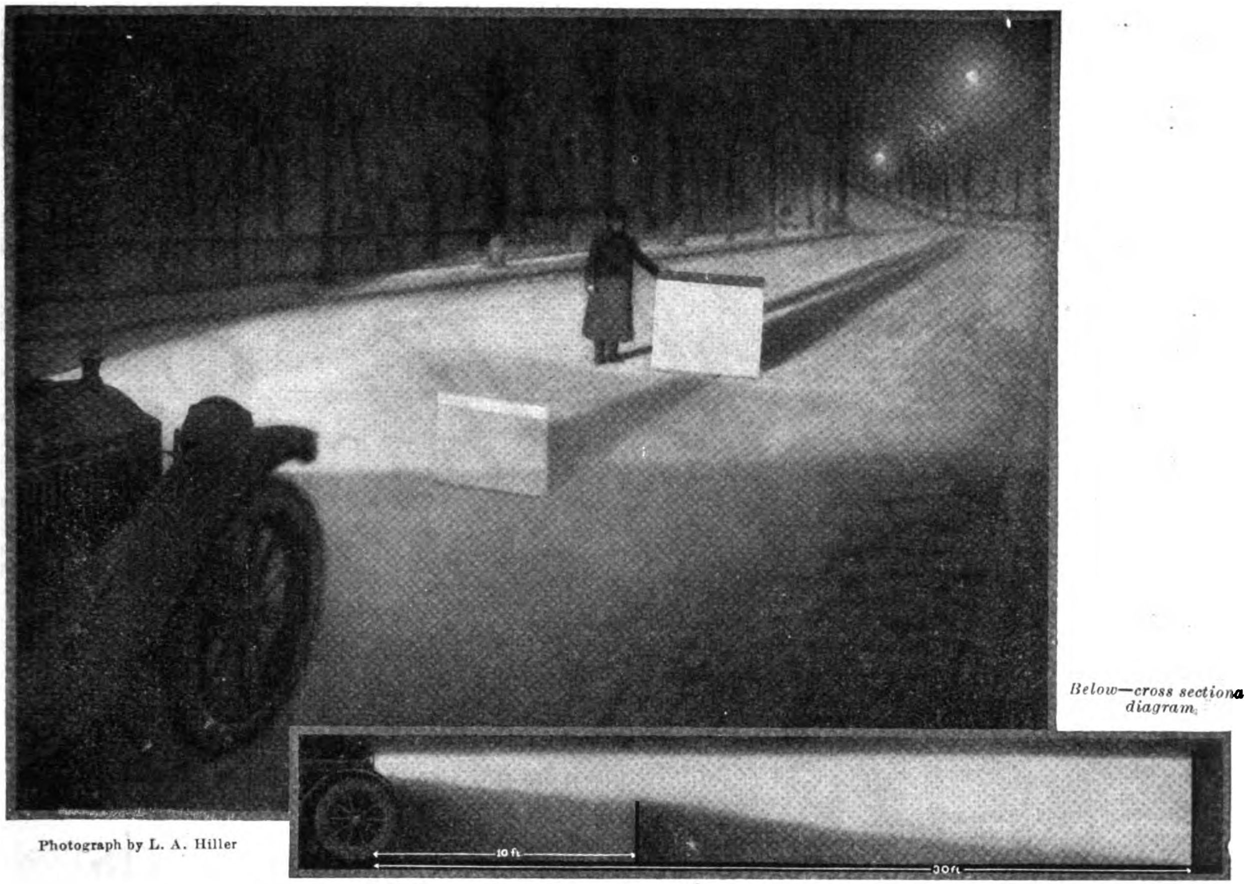
NEVER-LEAK
Cylinder Head Gaskets
STANDARD THROUGHOUT THE WORLD

We carry in stock and can make prompt shipments of cylinder head gaskets for use on the following automobiles:

Briscoe 1917
Buick 1914
Buick 1917
Cadillac Eight
Chevrolet
Chalmers 6-30
Crow Elkhart
Dodge
Dort
Enger
Grant Six
Hupmobile
Hudson Super Six
Interstate
Kissel Six
Kissel Twelve
Maxwell
Monroe
Mitchell
Samson
Vim
Metz
National
Oldsmobile 1914
Oldsmobile 1917
Overland Model 75
Overland Model 83
Overland Model 90
Oakland Six
Oakland Four
Packard Twin Six
Paige 6-38
Paige 6-46
Pathfinder Twelve
Pullman
Republic
Saxon Four
Saxon Six
Scripps Booth 1917
Scripps Booth 1915
Velie
Cole Eight

Write for discount XXI

FITZGERALD
MAIN OFFICE MFG CO. TORRINGTON, CONN



Photograph by L. A. Hiller

Below—cross sectional diagram.

What the double target test proves

Why the Conaphore is legal everywhere

YOU know that ordinary diffusing or prismatic lenses dump so much light directly in front of the car that long range is impossible.

This is why the double target test is the most important test of headlight efficiency.

How this test is made

A target 22 inches high is set up 10 feet ahead of the car. A second target, 4½ feet high, is placed 30 feet ahead. Across the second target a line is drawn 42 inches above the road.

The Conaphore beams shoot over the first target and brilliantly illuminate the second target *below the 42 inch line, but not above it.*

This gives positive proof that Conaphores provide long range—500 feet and more. It proves also that Conaphore beams never rise high enough to blind an approaching motorist or pedestrian. *Legal everywhere.* Only the Conaphore passes this test.

Noviol Conaphores are best

Conaphores are made of yellow-tint Noviol Glass (*patented*)—the only device which eliminates "back-glare" on foggy or dusty nights, and provides a light that is easy for your eye to follow.

CORNING GLASS WORKS
-TOP-
CONAPHORE
U.S. PATENTS ISSUED & PENDING

The Conaphore has a smooth front surface. Easily cleaned. Does not clog with dust or mud.

Clear Glass Conaphores are equally efficient except for this exclusive feature.

What this means to you

To put this important story of the double target test before American motorists we are spending about $25,000 on one advertisement alone. This advertisement appeared first in June. It will be carried by national and farm magazines with a combined circulation of 7,000,000—a total of 25,000,000 readers. No other headlight glass is so widely advertised.

Cash in on this publicity. Write for handsome Conaphore window transparency, just off the press—*free to dealers.* Mark your store as Conaphore headquarters and you can land the bulk of the headlight business in your territory.

Retail Price List (per pair)	**Noviol Glass**	**Clear Glass**
5 to 6⅞ inches incl.	$2.40	$1.60
7 to 8½ inches incl.	3.50	2.50
8⅝ to 10 inches incl.	4.50	3.00
10⅛ to 11½ inches incl.	6.00	4.00

Prices 25 cents more per pair west of Rocky Mountains. Sizes vary by steps of ⅛-inch above 6½-inch size.

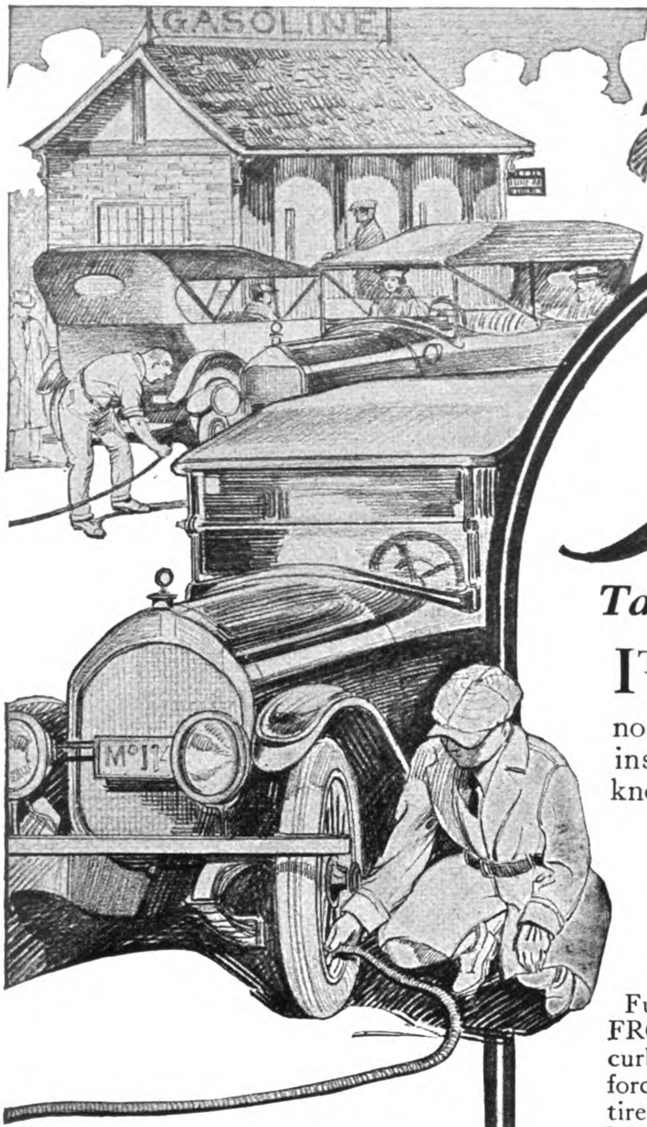
CONAPHORE SALES DIVISION
EDWARD A. CASSIDY CO., Mgrs.
Madison Avenue and 40th Street, New York City

NO GLARE
RANGE 500 FT.

CONAPHORE

PIERCES FOG AND DUST

CORNING GLASS WORKS—WORLD'S LARGEST MANUFACTURERS OF TECHNICAL GLASS



CURTIS ST. LOUIS

FREE CURTIS-AIR FREE FROM OIL

This Sign

Talks Tire Conservation

IT is furnished free with each CURTIS Garage Air Compressor and can be had in no other way. It's a sign of progress—inspires confidence and carries a slogan known to motorists the country over.

Install a Curtis Air Compressor

Furnish your patrons with CURTIS AIR—FREE FROM OIL—and watch the cars line up before your curb. Motorists know that the average air compressor forces oil through the air line—they know that oil rots tires, and they are looking for CURTIS AIR—FREE FROM OIL—because it helps them get greater mileage out of their tires and cuts down expenses—big items in these days when tire prices are steadily advancing.

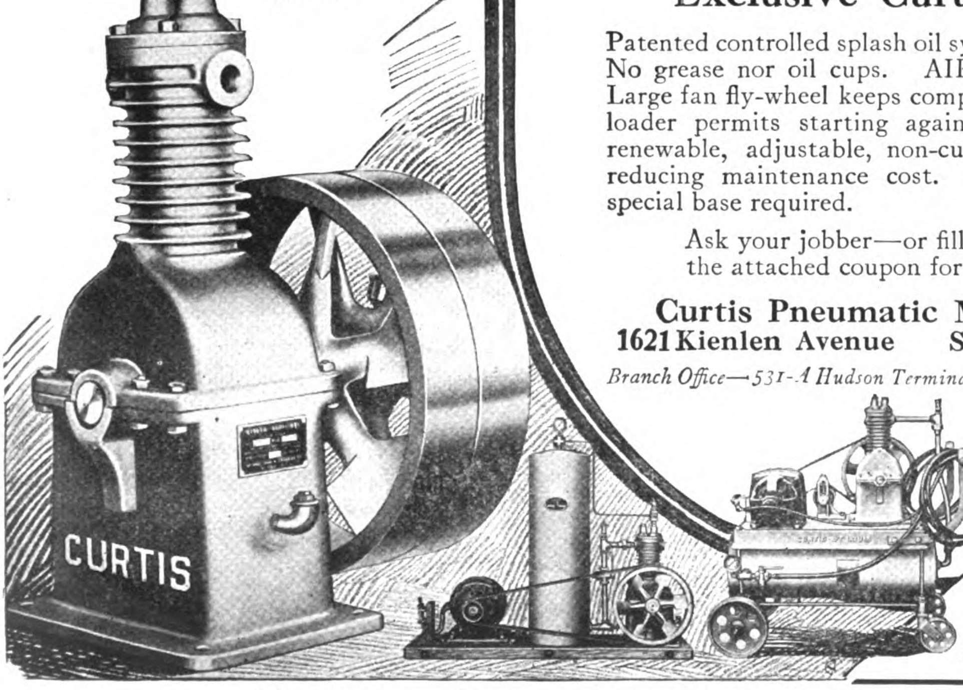
Five sizes—
Stationary or
Portable

Exclusive Curtis Features

Patented controlled splash oil system. Less oil required. No grease nor oil cups. AIR FREE FROM OIL. Large fan fly-wheel keeps compressor cool. Hand unloader permits starting against pressure. Bearings renewable, adjustable, non-cutting. Fewer parts—reducing maintenance cost. Easiest to install—no special base required.

Ask your jobber—or fill out and mail us the attached coupon for full information.

Curtis Pneumatic Machinery Co.
1621 Kienlen Avenue St. Louis, Mo.
Branch Office—531-A Hudson Terminal New York City



Curtis
Pneumatic
Machinery Co.
1621 Kienlen Ave.
St. Louis, Mo.

Gentlemen:—Please send me full details on Curtis Air Compressors—your proposition and low prices.

Name........................
Address........................
Jobber's Name........................
Address........................

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., JULY, 1918 No. 3

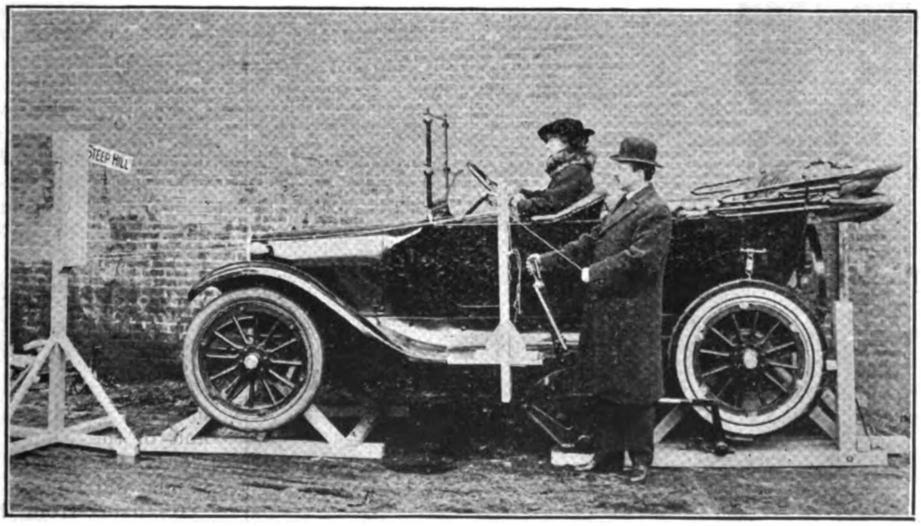
Standardized Operations On Repair Work Special Tools, Equipment and System Which Cut Down Costs of Labor

The Modern Service Station of Bishop, McCormick & Bishop, Inc. a Striking Example of Efficiency—Operated on the Flat Rate and Each Job Divided Into Distinctive Operations That Have Been Standardized as to Time and Cost—Educational and Publicity Departments That Are Advance Agencies For Stabilizing and Increasing Sales

ONE of the purposes of this article is to show how a complete, perfect service affects sales and, in the long run, minimizes the upkeep expenses of car owners. Bishop, McCormick & Bishop, Inc., Brooklyn, N. Y., distributors of Dodge Brothers cars in Brooklyn and all of Long Island, long ago realized that in order to give satisfactory car service to the large number of owners of the car they distribute, it was necessary to first build a sound foundation of as near perfect service as possible. In their Long Island territory, outside of Brooklyn, they have 17 sub-dealers who have duplicated the practises of service established by the parent firm, as nearly as their facilities will allow; and, in many instances where they cannot so satisfactorily take care of any particular service requirements of their local owners, they are sent to the central service station in Brooklyn for attention.

Burton T. Bishop, sales manager, is the type of the modern sales executive who in close team work with his associates has injected into the sales of motor cars the real science of selling. His is the new era of selling, backed up by character, conscience and an exemplary model of service, supplemented with a clear vision to anticipate the unexpected and being forearmed with the clinching argument to convince the most skeptical. He is an apt student of human nature, having a delightful faculty of humoring the individual, natural tendencies of a prospect so as to convince him that he can have his eyes open to the truth; and he invariably closes sales with the most lingering prospects. He says that one of his most difficult tasks is to train his junior salesmen to not talk too much and talk themselves out of a sale. He instructs them to allow the customer to ask questions and to give them a chance to do so between pauses in their selling argument, for which they must anticipate and make openings.

Mr. Bishop deals with only the real facts and leaves nothing at which the prospective customer must guess. He says that once a prospective purchaser enters their sales room, he is considered 90 per cent. sold, this being principally attributable to their constant educational advertising campaign. The prospect knows in advance of his coming to their sales room what he can expect of Bishop, McCormick & Bishop, Inc. by way of their educational and mechanical service. In fact, he has already been so impressed with the great help



The Anchored Car for Instruction on Driving Operations Under Varying Road Conditions.

that the firm makes a part of the understanding of every sale that he has practically sold himself, but has merely come to the sales room to finally convince himself of the reality of what he has read in the original and convincing advertising booklets and sales letters sent him by Bishop, McCormick & Bishop, Inc. Every customer is sold in a straight forward manner, with an explicit understanding that there is no free service thrown in with the bargain. He is sold to stay sold and to first secure the impression of satisfaction that remains with him, because he has been started right.

Over 1600 Cars Sold This Season.

Bishop, McCormick & Bishop, Inc. have sold in their Brooklyn and Long Island territory this season 1640 Dodge Brothers cars. Some of the salient features that have been instrumental in their securing this business are:

A continual brilliant advertising campaign through local newspapers, their own original copy and layouts of handsome, attractive advertising matter in the form of booklets and folders, and direct personal sales letters, which are the most convincing the writer has ever seen.

An excellent mechanical service backed by the most efficient, time and labor saving machinery and mechanical equipment, supplemented with special tools of their own design, and all directed by a highly capable service manager.

An equitable, honest cost system upon which to base charges for service.

An educational department in which they train customers to become capable and careful drivers, instilling into them the practical knowledge of motor car construction and the causes of troubles and the proper adjustments and remedies by which they may be overcome by the owners' knowing first hand how to do the work. They have eliminated over 50 per cent. of the troubles that freely come to a great majority of dealers, by fitting the purchasers of their cars to be aidful to themselves instead of helpless and an unnecessary burden to dealers and garage men.

Bishop, McCormick & Bishop, Inc. will not sell a car to a new owner unless he first proves his ability to be able to understand the principles of motor car construction, the causes and effects of irregularities, how to detect and simply remedy them, before they will have gone to the danger point, with the possibility of aiding to contribute the weakness to other parts of the car.

Burton I. Bishop, the sales manager, says that if he sold a car to a new owner who, through the lack of practical experience in knowing how to drive, collided with an obstruction and battered up the fenders and other parts, considerable of the responsibility for such an accident would reflect upon his firm. He holds that the appearance of one of their new cars wrecked in such a manner would leave a poor impression on the public, to the effect that the car was poorly constructed and lacked stability. He correctly lays the responsibility of such accidents right at the dealer's door, because he failed to thoroughly train the owner how to carefully drive the car. He says that sales of cars to irresponsible operators are examples of insincere salesmanship, that the interests and welfare of the customers make up the foundation of satisfactory sales.

Extracts from Sales Letters.

Here are a few striking extracts from several of the company's sales letters, circulated to advertise their educational department:

"There was a time when we might have agreed with you that you could not afford to own a motor car, but that time has passed.

"Economy is not a matter of doing without something so much as it is doing well with something. That thought applies to every phase of life, but especially is it true of the use of an automobile. True economy is the science of buying more with each dollar you spend, and then making what you buy give the maximum results."—From a letter illustrated at the top with their duplex control car and a street crowded with traffic, suggestive of their driving instructions.

And these "punchy" extracts are from another letter printed on a letter head with the same illustrations:

"When Colgate & Co. couldn't improve their talcum powder they improved the box that contained it.

"As Dodge Brothers dealers we face a situation somewhat similar to Colgate's. Dodge Brothers car has demonstrated its goodness to the satisfaction of the public. Its reputation for steady, consistent performance is so well established that it is taken for granted. * * *

"The usual methods of driving instructions could be improved upon. They are inadequate and nerve-racking, leaving too much to be learned at the risk of the car. So we developed the two devices shown at the top and on the back of this letter head (duplex control car and the anchored car). With them learning to drive correctly is simply a matter of practise under easy and favorable conditions, without strain or risk. But what is most important the purchaser actually becomes a finished and experienced driver before he attempts to operate his own car. Thus we meet a responsibility as dealers." * * *

Now listen to what they say in part in another sales letter on their school for instructing new owners, printed on their letter head illustrated with a picture of their school at the top and a picture of the Dodge chassis on the back:

"The old saying, 'A poor workman is always complaining about his tools,' is just another way of saying he does not know how to use them.

"The wonderful economies of automobile manufacturing are the result of training workmen to use tools correctly. Yet the greatest part of the maintenance cost on motor cars is a penalty paid by owners because dealers have not taken the pains to teach them all they must know about their cars to get the best results from them.

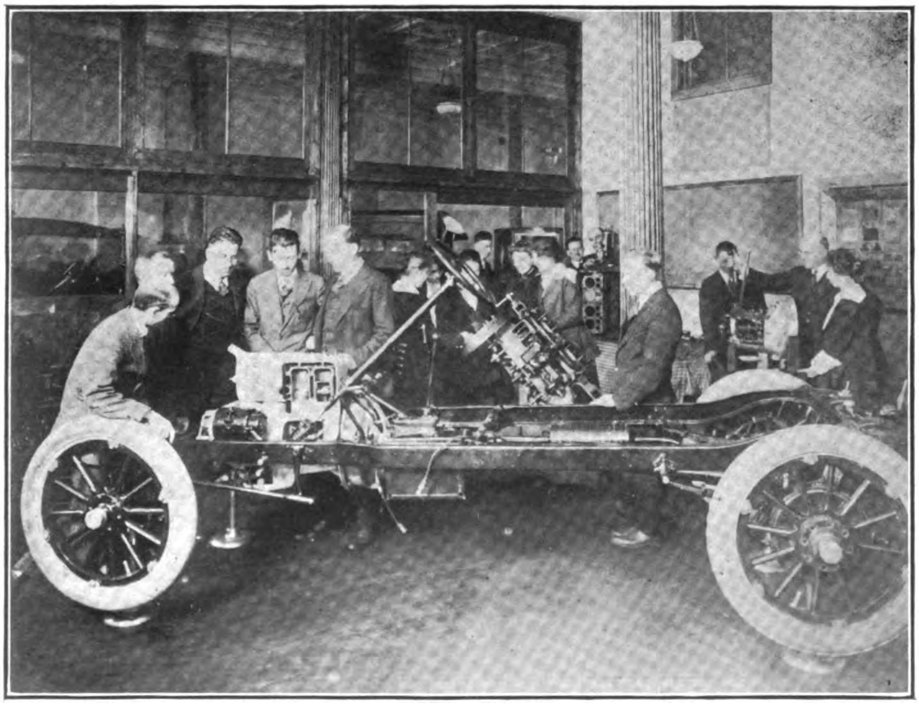
"Realizing this we developed our method of instructing owners to drive correctly. Then we started our school for owners, offering a simple, easily understood course of lectures on the mechanical construction of the car and its proper care and maintenance. The results obtained have been remarkable."

* * *

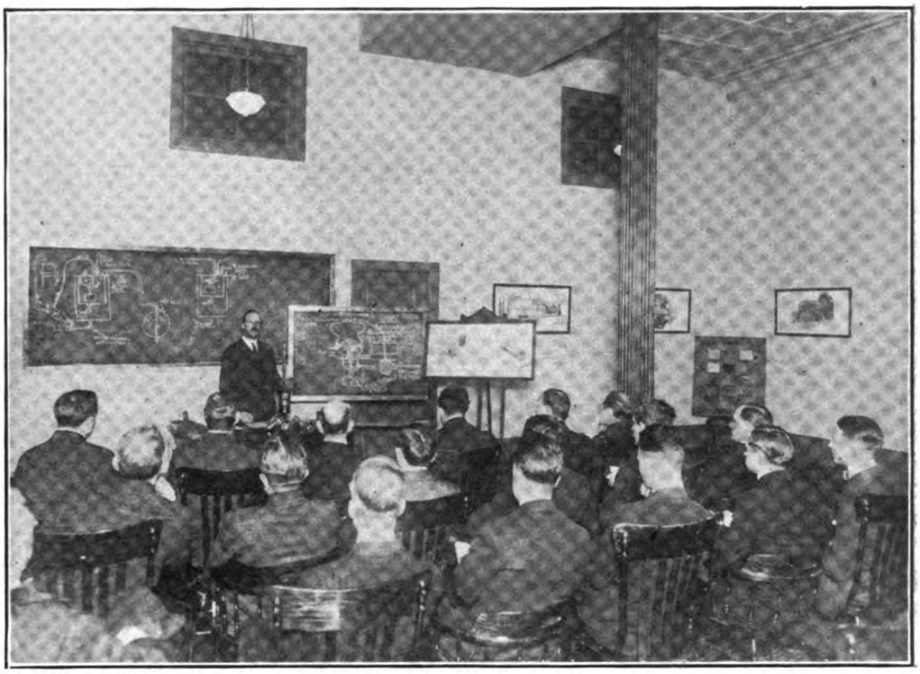
Driving Instructions in the Anchored Car.

The system of driving instructions is based on the conclusion that the operation of a car is nothing more or less than the proper order of certain mechanical operations performed at the right time and in the proper manner, or, in other words, the proper training of the eyes, hands and feet.

Realizing from the start that it would be difficult to give intensive training of this kind in a car that was moving, be-



Section of the School, Showing Chassis Used for Instruction.



Class Room of School: New Owners Listening to a Lecture Being Delivered by the Mechanical Engineer Instructor.

cause its very movement would tend to distract the pupil and prevent him from concentrating his attention on the proper performance of the mechanical operations, Bishop, McCormick & Bishop, Inc., developed a machine which they have patented and named "The Anchored Car." It is a standard Dodge Brothers motor car raised off the ground and equipped with apparatus that permits them to duplicate actual road conditions in a stationary car, with the motor running. Seated in this car the pupil practises starting, stopping, backing, climbing hills and pulling through sand before he attempts to put a car into actual operation on the road.

After the first lesson the practise on the anchored car is directed by a series of signs operated by the instructor, through which actual road conditions are visualized for the pupil. Thus starting gradually the efforts of the pupil are confined solely in the first lesson to an understanding of the mechanical operations, through the signs and the reasons for the performance of the operations. The instructor develops in the pupil's mind that quick reaction to sudden changes of conditions which is essential to correct and safe driving.

Aside from acquainting the pupil with the construction of his car in relation to its operation the instructions on the anchored car, the general principles governing the operation of a gasoline automobile, describing each unit in detail, and other mechanical instructions in the school course are given in a brief text book prepared and published by Bishop, McCormick & Bishop, Inc., entitled "Driving Instructions." This book is supplementary to Dodge Brothers' "Book of Information" furnished with each car. After four or five lessons with the anchored car one lesson is devoted to the lubrication of the car, and in this lesson the entire oiling system is explained.

Road Work in the Duplex Control Car.

The pupil is given his lessons on actual driving and road work in the duplex-control car, perfected and patented by Bishop, McCormick & Bishop, Inc. This car is so designed that all the essential parts of its operating control are duplicated. It has two steering wheels, two sets of clutch and brake pedals, two accelerators, arranged so that the control operated by the instructor dominates that used by the pupil; thus it is possible for the instructor at any time to instantly take control of the machine without reaching over or interfering in any way with the pupil.

The duplex-control car permits the instructor to start road instruction under actual operating conditions, and instead of seeking unfrequented streets he may hunt out the busiest ones, going through congested traffic with safety, doing everything that will be necessary for the pupil to do himself when his instruction is completed. By this method the pupil learns to operate the car and acquires experience at the same time without risk, nervous strain or delay. After a few lessons on the duplex-control car the pupil is ready to take final instructions in driving his own car. It is surprising to see how his previous instructions have become second nature to him. He even ventures into congested traffic, with the dangerous risk reduced to the minimum.

The School for Owners.

The Bishop, McCormick & Bishop, Inc. school work is in charge of a mechanical engineer who is also an experienced instructor. The class room is equipped with a complete stripped chassis and a separate sectioned engine showing all the working parts. Every unit of the car is mounted separately—for instance, the gearset and the final drive and differential are mounted with the gears exposed and the proper connections made, so that its operation is plainly shown. Carburetor action and gasoline feed are explained with the aid of glass-paneled working models. The electrical apparatus is thoroughly treated, including the care of the storage battery. The lessons are designed not only to explain the construction of the car and the mechanical features that make its operation possible, but also to impress upon the owner's mind the things that are likely to happen if the car is not properly operated and maintained.

Driving instructions are furnished without charge to one driver for each car purchased. Additional drivers are instructed at the rate of 75 cents for indoor lessons, 75 cents for road lessons in the pupil's car and $1.50 for road lessons in the company's car. A nominal charge of $7 is made for the course in care and maintenance, which is covered in seven lessons, which are supplemented by a set of preliminary instruction pamphlets for home reading.

The company has lately added a course in shop practise to keep the users of their commercial cars in touch with mechanical methods of upkeep, which have been standardized in their own commercial car department.

Their educational department has been instrumental in creating many new car owners. Their methods of instruction are so practical that the most timid person is readily convinced that by such training he can become a better driver than the average car owner.

The Company's Policies of Efficiency.

Clifford M. Bishop is the secretary and general manager of Bishop, McCormick & Bishop, Inc. He impressed the writer as a forcible character; indeed, as a man of exceptional attainments and of great initiative. Many of the ideas from which a working system was evolved emanated from him. Those ideas were not mere flights of thought, but after they were accurately balanced in the scales of judgment by the other members of the company at the counsel table they were approved as practical of incorporating into a workable system from which they have obtained an efficiency in service and also a profit. Mr. Bishop is also the advertising manager and his work in this line stamps him as a genius. Considerable of this company's success is attributable to his ability in molding public opinion; his advertising work is truly educational and a treat and inspiration to those who receive it and appreciate its real value.

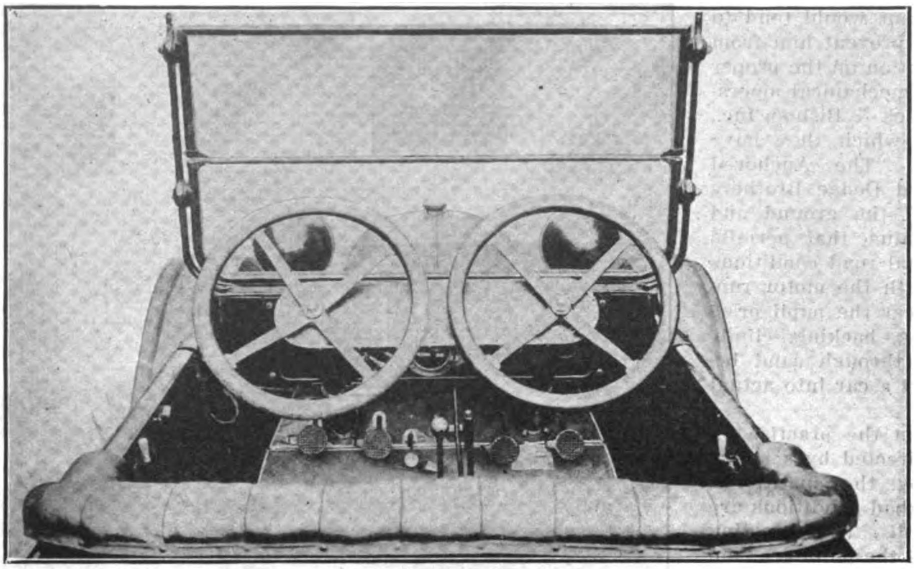
Here are the company's policies of efficiency, as summarized by Clifford M. Bishop:

"Discussing particularly our standard practise and standard time charge repair system, we would say that it represents the result of 13 years of study of the repair problem. We have gone through the business from almost every angle. We have operated a garage, handled two or three lines of cars, and we have tried almost every new idea and new experiment that has come out in the business, and we have arrived at certain fundamental conclusions which form the basis of our business, and upon which everything else is predicated.

These conclusions are:

"First: That it is not profitable to operate together a sales agency and a garage, if there is any possibility of extending the sales end of the business to a sufficient extent to bring the financial return warranted by the investment.

"Second: That it is not nearly so profitable to handle two or three lines as it is to handle one line with sufficient territory to secure a satisfactory return.



The Duplex Control Car Used by Demonstrator to Check Up Driving Efficiency of Pupil.

"Third: That the simplification of a business for one good line of cars and the necessary departments to meet the moral and material obligations to purchasers produces an increase in profit that greatly exceeds any profit that might result in the handling of two or more lines of cars, or from the introduction of other departments that interfere with the efficiency of the whole.

"Fourth: That it is not possible to operate an automobile business profitably except on a cash basis.

"Fifth: That it is not possible to operate it on a cash basis satisfactorily unless the business is so organized that the price of work based on the exact knowledge of the cost of materials and supplies, can be told to the customer in advance.

"Sixth: That it is possible to apply the principles of manufacturing efficiency to the repair work, and that the return in profit to the dealer and in satisfaction to the customer warrants any expense necessary in the installation of a system.

"Seventh: That unless the sources of conflict with customers and the arguments and loss of time involved in such conflicts are eliminated from the business it cannot be truly successful."

Conditions Prevailing on Basis of Variable Charges.

Bishop, McCormick & Bishop, Inc. have adopted the flat rate of charge for various operations of repair work, such as cleaning engine of carbon, grinding valves, overhauling the transmission gearset or adjusting and repairing the differential gears, etc. (See example in illustration, Fig. 1.) They have standardized these operations and their thoroughly tried out cost system has enabled them to establish a standard cost on each operation, from which they make up their price to charge the customer.

Mr. Bishop explains as follows the conditions that obtain where repair work is not done on the flat rate:

In the first place the customer comes to the repair department, troubled with a noise in his motor. He wants to have the noise eliminated and the shop foreman estimates roughly what it will cost to eliminate the noise. He generally makes his estimate high enough, or attempts to make it high enough to cover any contingencies. He does not know at the time what workmen will work on it and he is gambling in his estimate, both on the conditions that may exist in the motor and on the ability, manner and method of the man who does the job. We will say that he tells the customer $100 and when he goes into the work he finds it will cost $150. The customer comes in prepared to pay $100 and when he finds he has to pay $150 he is probably not prepared mentally or financially to meet the obligation. The result is quite likely to be a breaking down of the cash-on-delivery system in this particular case and the assumption on the part of the dealer in the gamble of $50, or it may be that the job only costs $85 and the customer has been told that $100 would probably cover the job. He is quite likely to leave with the impression that he has been robbed at $85 because mentally he figured the job at $60. It is easy to see how much unnecessary time it is going to take the foreman or service manager and his assistants in handling the case whatever the charge is, which represents the dealer's side of it. Now as to the customer's side: He has left his job with the repair shop and he has no definite idea of how the shop is going to do the particular job, or who is going to do it, and they have no idea of how many demands may be made on them for small units of time in emergencies.

It may be necessary to pull a man off this job and put his time on another job temporarily, or to have him leave what he is doing and assist somebody else. There are no adequate provisions made for keeping track of the time lost in that way, therefore, the customer's job charge is quite likely to represent so much time actually put on the job and some time spent sweeping the shop or assisting other mechanics, moving cars and doing any one of the many things that arise in the operation of the ordinary repair shop.

It is also quite likely, too, that the reason the charge was $150 on the job is because the mechanic did not do the job right the first time and it had to be done over again. Of course the customer does not know this, but the service manager has employed the best mechanics that he can secure and the customer must pay for the time they spend regardless of whether it is spent efficiently or not. Therefore, he feels entitled to the $150 and he is going to get it. Let us consider one other angle, the proprietor in the business. Assume he is earnest, honest and anxious to please and that he cares a great deal about the good will of his customers. How can he possibly check up what a service manager is doing and on what possible basis can he decide whether his shop has been fair to the customer or not? How can he adjust a dispute except on the principle that the customer is always right, and if he adjusts disputes on this basis how can he possibly avoid a tremendous financial loss in his service department, or if he backs his foreman up and insists on the payment of the charges, how can he avoid an equally great loss of good will?- This is the briefest kind of a summary of three different angles on the question. Now let us take them on the other basis:

Standard Time, Method and Charge.

Let us assume that the shop is being conducted on the standard practise, standard charge basis. The first thing to be considered is the overhead expense of the shop, including the testing of cars before work is received and testing again before delivery is made to the customer, the necessary clerks and office help to keep track of the system, cleaning up of the shop, moving about of cars and the doing of any chores that are necessary, these functions being entirely eliminated from the mechanics. Having decided what this overhead expense is it may be divided over the number of working hours of the shop, and when added to the average rate paid to mechanics and the profit desired per hour, we can arrive at a rate per hour which accurately represents the value of that hour of work to the customer.

Now let us consider as a second step that the shop foreman and the mechanics working on the job are entirely out of contact with the public. The receiving and the handling of repair work is accomplished by a separate organization consisting of a courteous and thoroughly competent clerk, and four or five testers, according to the size of the business. This is what we will call the contact end of the service department. Now let us go back to the repair shop for a moment and consider that through accurate records, for a long period of time, we have been able to evolve the average cost of doing most of the operations, split up into as small units as possible, which may be necessitated by the car we are selling. Let us analyze these operations and the method and manner in which they are performed to arrive at two things: First, the average time of each operation, and second, the best method of doing that operation. Then let us develop an average time for the operation, which we will call our standard time, and a method of doing the operation, which we will call our standard method. Multiply the time by the rate per hour and we develop a standard charge for the operation.

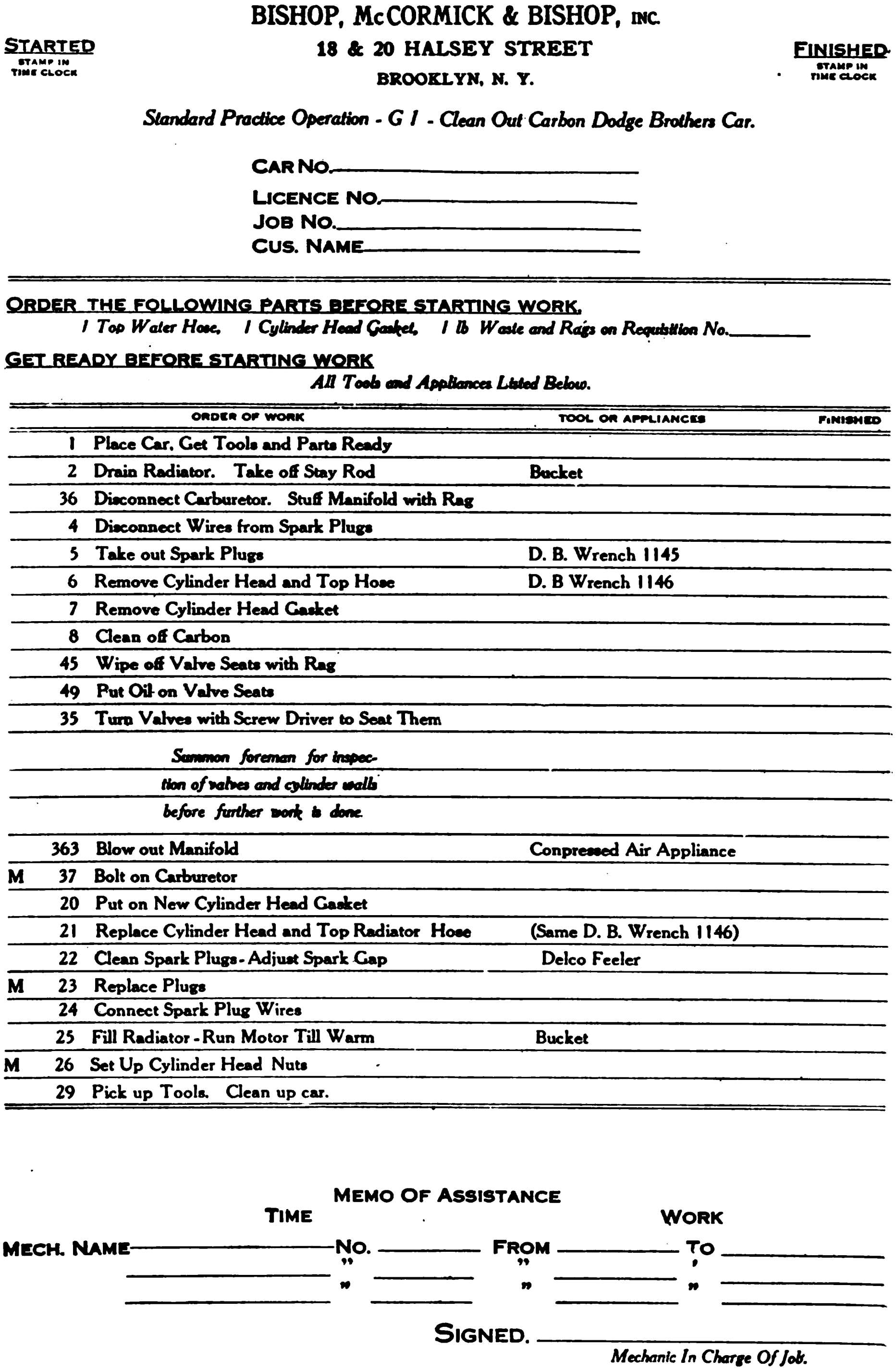
The Standard Job and Flat Rate.

The service department of Bishop, McCormick & Bishop, Inc. also establishes what tools shall be used on the operation and they become the standard tools. They specify also what parts may be required for the operation. They use a printed form for that operation which contains each step in the operation in its proper order, each tool necessitated by each step and what parts are necessary. The combination of this operation, with several others, makes up a standard job. It is only necessary to allow sufficient time at the start of the operation for the mechanic to gather together all the tools and parts he may need and to see that the car is properly placed for him, and to add at the end of the job sufficient time to permit him to gather up the tools, clean up the part of the car he has been working on and return the tools to the tool room. They have a unit standard job printed so that when the contact end of the service department receives from the customer an order to do that particular job it is only necessary for the shop foreman to assign a man to it, who receives the printed form from the shop clerk and starts to work. There is no need of wasting any time explaining anything even though the workman may be a new one; if he can read and knows how to handle tools he can do the job and he will do it in the same way that any other mechanic in the shop would do it in approximately the same amount of time. The law of averages, of course, applies; one man may be faster than another, but in the long run the average is maintained for both customer and dealer. Every element of gamble has been eliminated from the job. If there is any waste of time or loafing or inefficiency, that becomes an item of cost for the man responsible for it, the dealer. It is reasonable to suppose, under the circumstances, that he will take due precautions to see that there is no lost time and no inefficiency, because he has burned his bridges behind him, so far as the customer is concerned, when he set a flat rate for the job. That is his evidence of good faith to the customer and is the investment he has made for efficiency.

Now the rate per hour is, of course, a secret rate and it is not a matter of concern to the customer, provided the job cost is reasonable. It might be 50 cents an hour or in the highly developed and thoroughly efficient shop it might be $2 an hour. The customer is not concerned with how much the shop is making, he is concerned solely on what he will get and how much he will pay for it. What a wide range of efficiency this opens to the dealer? He can equip himself with special tools of various kinds that will cut his labor time materially. In fact, every time he introduces a new element of efficiency he does it with a profit to himself. He holds in his own hands all the factors of success or failure.

Easy to Collect Cash When Price Is Established.

Now let us consider the customer: He comes to the service department and meets this efficient and courteous clerk we were talking about, and an exceedingly competent tester is sent out with him in his car and they ascertain what the trouble is with the car. The tester reports to the clerk and the clerk tells the customer what his car needs and how much it will cost him to fix it. The customer then may say "it's too much," and the clerk then replies "that's our charge for the work and it is the only charge that we have;" then the customer may decide whether he will have the work done or go somewhere else and



BISHOP, McCORMICK & BISHOP, INC.
18 & 20 HALSEY STREET
BROOKLYN, N. Y.

STARTED
STAMP IN TIME CLOCK

FINISHED
STAMP IN TIME CLOCK

Standard Practice Operation - G 1 - Clean Out Carbon Dodge Brothers Car.

CAR NO.____________________
LICENCE NO.____________________
JOB NO.____________________
CUS. NAME____________________

ORDER THE FOLLOWING PARTS BEFORE STARTING WORK.
1 Top Water Hose, 1 Cylinder Head Gasket, 1 lb Waste and Rags on Requisition No.________

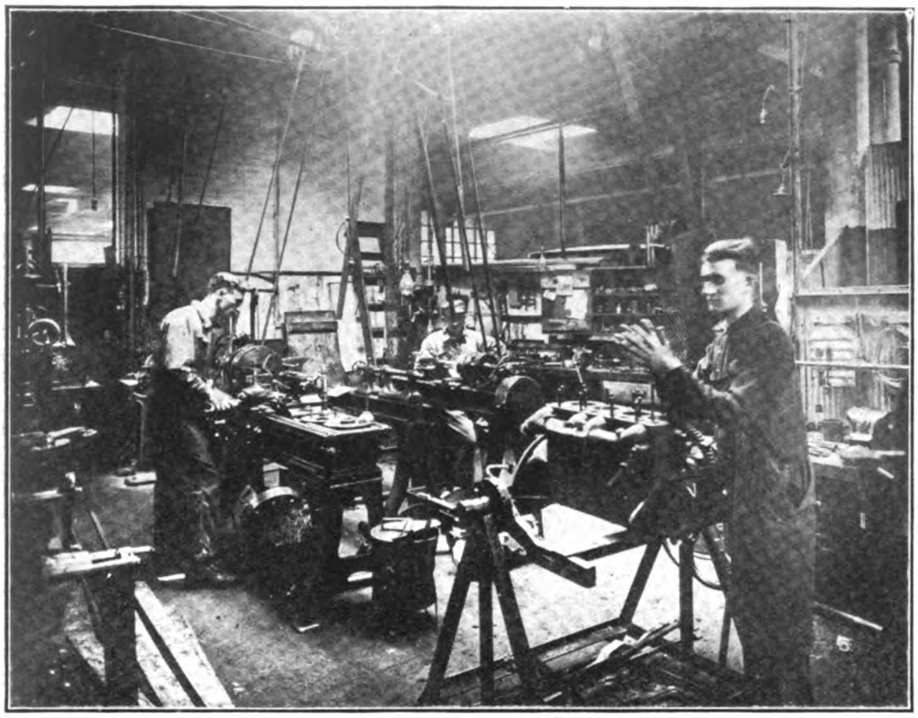
GET READY BEFORE STARTING WORK
All Tools and Appliances Listed Below.

		ORDER OF WORK	TOOL OR APPLIANCES	FINISHED
	1	Place Car. Get Tools and Parts Ready		
	2	Drain Radiator. Take off Stay Rod	Bucket	
	36	Disconnect Carburetor. Stuff Manifold with Rag		
	4	Disconnect Wires from Spark Plugs		
	5	Take out Spark Plugs	D. B. Wrench 1145	
	6	Remove Cylinder Head and Top Hose	D. B Wrench 1146	
	7	Remove Cylinder Head Gasket		
	8	Clean off Carbon		
	45	Wipe off Valve Seats with Rag		
	49	Put Oil on Valve Seats		
	35	Turn Valves with Screw Driver to Seat Them		
		Summon foreman for inspec-		
		tion of valves and cylinder walls		
		before further work is done.		
	363	Blow out Manifold	Conpressed Air Appliance	
M	37	Bolt on Carburetor		
	20	Put on New Cylinder Head Gasket		
	21	Replace Cylinder Head and Top Radiator Hose	(Same D. B. Wrench 1146)	
	22	Clean Spark Plugs - Adjust Spark Gap	Delco Feeler	
M	23	Replace Plugs		
	24	Connect Spark Plug Wires		
	25	Fill Radiator - Run Motor Till Warm	Bucket	
M	26	Set Up Cylinder Head Nuts		
	29	Pick up Tools. Clean up car.		

MEMO OF ASSISTANCE
TIME WORK
MECH. NAME____________NO. ______ FROM ______ TO ______
____________ " ______ " ______ " ______
____________ " ______ " ______ " ______

SIGNED. ____________________
Mechanic In Charge Of Job.

Fig. 1—Blank Form as Example of a Standard Operation of Repair Work.



Section of the Machine Shop. A Lathe Hand Is Turning up a Bearing Carrier for An Extended Dodge Brothers Chassis and Another Lathe Operator Is Facing Off a Valve, and the Third Mechanic Is Hand-Finishing Valves That Have Been Ground with the Electric Grinder.

have it done, but either way there is no reason or hope of gain through argument. If he leaves the job and the clerk has told him $100, he knows it will only cost him $100, and when he comes for the car he goes out with the tester and if the car is all right he pays his $100; if it is not all right it is made right at the dealer's expense before the customer pays the $100, because it is the dealer's fault. What possibility is there for argument? Following out the case illustrated under the old method, let us consider when there is a noise in the car. Under standard practise Bishop, McCormick & Bishop, Inc. never accept a general order to accomplish a definite result. To illustrate, they would not think of taking an order from a customer to eliminate a certain knock or sound from his car; that would introduce a gambling element entirely foreign to practise because there are no contingency margins in the system; therefore, in a case of that kind an order would be taken and a charge made for opening up the motor to examine it and then when it had been examined another order would be taken to do specific things to the motor and they guarantee that the things they attempt to do will be done properly, but not that they will accomplish any definite result; for instance, if they found the main bearings loose they would agree to fit them at a price and that the work would be done properly and so on through the various items involved. Under the old system Mr. Bishop says he has seen orders taken to eliminate a sound from a car where the motor has been taken down and put together two or three times and the noise remained. In standard practise that may be possible, but it is extremely unlikely, in view of the fact that an examination involves the micrometer measurements of cylinders and pistons, as well as examination of all bearings, and it is reasonable to suppose that if a proper examination is made beforehand every other possible source of trouble will be detected, and since standard practise involves the same system of inspection that is used in new car manufacturing, such for instance as the stopping of a job at a certain point until the foreman's O K has been given to proceed. It is not likely that the time will be wasted on a job, any of the steps of which have been properly done. When a customer has had his work done by this method he will not willingly go back to the old system. In such a simple operation as grinding valves, under the old system he might come in and have the work done for $5 at one time and then the next time it might be $8, depending on the condition of the valves and the ability of the man working on the job. In standard practise he would pay the same price both times and again the possibility of argument over various charges is eliminated.

It is easy to collect cash from the customer when he knows in advance what he is expected to pay. Even in the case where there is a condition inside of the motor which cannot be ascertained until it is opened; when it is opened a definite charge is given him in advance for the work; therefore, there is no reason why he should not be prepared to pay for it.

Two Classes of Mechanics.

The dealer knows at all times how many working hours there are in a shop. He knows how many working hours are sold and he knows how many working hours for which he receives pay and it is a very simple matter for him to detect any increase in the number of wasted hours, such as are involved on a job being turned back by the tester as being not properly done, or a job brought back by the customer because work was not properly done; therefore, it is a very simple matter for the service department to keep track of the shop.

There is another variation in standard practise which means considerable in the efficiency of the shop and that Bishop, McCormick & Bishop, Inc. designate as machine shop practise. Every one in the trade knows that there are two classes of mechanics. First, machinist mechanics. Second, ordinary or automobile mechanics. A machinist mechanic is a mechanic who is graduated from machine shop practise and is, therefore, thoroughly trained in fine work, such as fitting of bearings, etc. They have found that they could introduce new elements of efficiency by having all motor work done in the machine shop by machinist mechanics. On jobs of this kind the automobile mechanics become merely assemblers. This introduced considerable saving in time and also an added element of surety that had not existed before.

Incoming and Final Tests of Cars to Be Repaired.

The service department of Bishop, McCormick & Bishop, Inc. does not rely on the customer's report on certain irregularities to be adjusted or units to be repaired, but in every instance they give the car their "incoming test" to ascertain whether there is anything other than that reported by the owner which should have attention. All the information of this "incoming test" is incorporated in the tester's printed blank form, here reproduced:

Form No. 38
BISHOP, McCORMICK & BISHOP, INC.
Brooklyn, N. Y.
Inspector's Report.
Incoming Test.

No.
Speedometer.
Record, 9690. W. E. McGuirk.
Motor No. 102,259. 1567 President St.
License No. 27,654. Tel. Bedford 5842.
Inspector, Monahan.

Grind valves.
Tighten starter chain.
Equalize foot brakes.
Tighten drag link (2 ends).
Tighten steering at connection.
Put new felt washer in right front wheel.

The process of testing is very simple. Their tester rides out with the customer and he shows the tester the trouble of which he complains. As soon as the inspector has located the trouble he spends the balance of his time on the test in the attempt to discover if there is anything else wrong with the car, and when the car is brought back to the service station he also examines it, going over it very thoroughly. He then makes a complete report of anything he finds wrong to the service clerk, who takes the case up with the customer on the basis of the inspector's report. Here is a very important step and safeguard in their standard practise system. It quite frequently develops that the customer does not want anything done to his car beyond the correction of the particular condition he designated. Of course they follow the customer's wish in this respect, but the tester's report is affixed to the repair job ticket. It also quite frequently happens that when the final test is made, which is for the purpose of showing the customer that the condition of which he complained has been corrected, that the customer will call the final tester's attention to some condition in the car which did not exist when the car was brought into the service station, and it is invariably developed by reference to the original tester's report that the customer's attention was called to this condition and that he refused to have the work done; or it may be that an interval will elapse and then the customer will come in and bitterly complain about his car on account of the trouble he is having, and reference to their tester's record will show him that he might have avoided the trouble if he had permitted them to do some minor precautionary work to which their tester had called his attention.

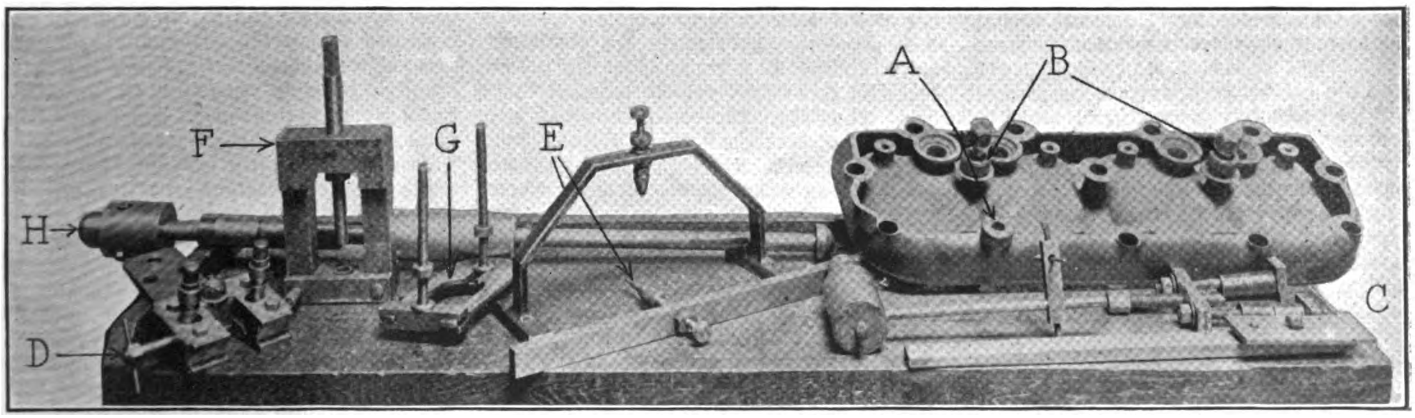
There are several other checks of similar kind which Bishop, McCormick & Bishop, Inc. keep on all the cars they have sold, which are of great assistance in the handling of unreasonable complaints. These are not methods that they could allow to be published, but they declare that it is an easy matter for any dealer to develop ways of deciding, as for instance, when a customer comes back to him and says he has run his car only 200 miles, whether he is not slightly mistaken in his statement and has not, in fact, run it 1500 or 1800 miles. Bishop, McCormick & Bishop have found that it is only necessary to catch a customer wrong once in a statement he has made in order to make him an entirely satisfactory and well behaved customer thereafter. By this they do not mean that they are looking for trouble of that kind, but it almost goes without saying that it is utterly impossible to be fair to everyone in service work unless some standard of judgment of complaints is established, nor is it wise to let one or two unscrupulous owners spoil your faith in hundreds of owners who ask only what is fair and right and with whom the carrying on of any business transaction is surprisingly simple and easy.

Saving Time and Labor with Special Tools.

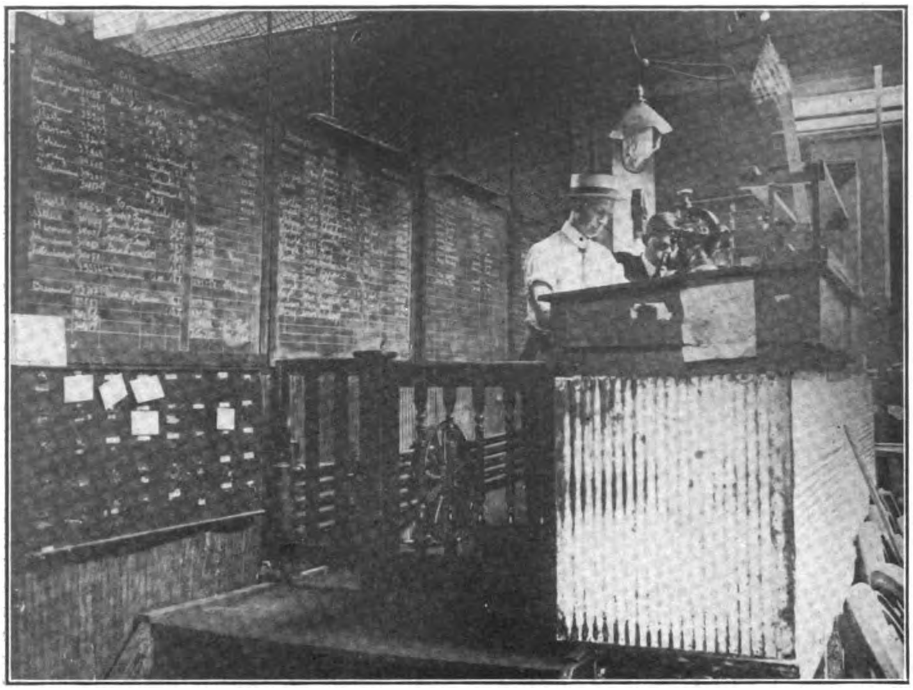
Bishop, McCormick & Bishop, Inc. are enabled to cut down the time on various operations of repair work by using a number of special tools of their own design. This is another angle of their efficiency by which they have been enabled to adopt standard practise on various operations. The utility of these special tools is sufficient to attract the admiration of all practical automobile mechanics, as the possibilities of larger profits through the use of special tools are so much greater. This can be illustrated by a valve grinding job. Let us assume that a valve grinding job done by the hand method costs $8, that the time consumed in grinding these valves is about six hours; having established this rate of $8 for the job, by way of comparison, we substitute an electric valve grinder and cut the grinding time from six hours to less than one hour, but leave the charge to the customer the same. On the basis of this greatly increased efficiency the service department of Bishop, McCormick & Bishop, Inc. argues that if their rate per hour were $1, five hours of labor would be saved, although an additional item of expense would be added by the use of electric current and the wear on the valve grinder. Then they assume, for example, that the cost of grinding a set of valves would be $2, which leaves three hours, or $3, saved on the job, which can be expended toward paying for the valve grinder, and as soon as it is paid for the dealer can either keep the extra profit himself or he can share it with his workmen or divide it between himself and his customers. They hold that this phase of shop work is an angle of efficiency in standard practise, which lends a charm to service work which never existed before. Its possibilities are tremendous. The proper wrench for a particular operation will often save 15 minutes to an hour's time in the handling of it. The time and labor saved by using the proper appliances for lifting out bodies, jacking up rear axles, lifting out motors and delivering them to the machine shop make up an economical efficiency that increases the profits of the dealer.

The special tools described below were designed and perfected under the direction of the capable service manager of Bishop, McCormick & Bishop, Inc. Joseph Kenney, who is a practical machinist and has been connected with the automobile business for the past 12 years. Nearly all of these tools can be used on repair work on nearly all makes of cars:

1. Gauge for measuring the oil dips on the connecting rod and the oil level and the combination splash and force feed system used on Dodge Brothers car.
2. Another tool that has saved a great deal of time in cases where the outer bearing race of the drive pinion bearing has broken and it is impossible to extract it in any other way.
3. A special vise to hold the bearing cap or connecting rod while the bearing is being scraped. When the ordinary type of vise is used for this purpose it is quite likely, unless the mechanic is exceedingly careful in tightening the vise sufficiently to hold the cap, it will also press it out of shape. This vise contains two pins, which fit into the holes in the cap or connecting rod and hold it in this way.
4. There is another tool, a jig, devised for use on the earlier cars where bolts were used instead of studs; quite frequently the thread in the cylinder that the bolt fitted into would become stripped. The jig is used to redrill and retap these holes.
5. A special yoke puller to pull the universal yoke off the transmission shaft.
6. Another special tool is a clutch spring compressor to hold the spring until thrust plate has been removed or replaced.
7. Another tool that has been exceedingly helpful is a gauge to test the trueness of the brake drums in adjusting brakes. This is one job that is quite likely to be poorly done in most of the shops.
8. In connection with brake work they also use a jig to hold the brake lining so that it can be drilled, countersunk and riveted in one operation without any danger that the brake band will be hammered out of shape, which is quite likely to be the result if this work were



Special Tools: In the Upper Right Hand Corner Is the Special Jig Used to Retap and Redrill the Cylinder Bolt Holes; A, Removable Guide for Drill; B, Sleeve and Taper Stud to Center Jig; C, Tool Alongside Cylinder Head Used to Test Brake Drums to Ascertain Trueness; D, Special Vise to Hold Connecting Rods and Bearing Caps; E, Gauge to Measure Oil Dip on Connecting Rods and Oil Level in Pan; F, Press Used to Press Out Old and in New Bushings in Steering Arms in One Operation; G, Clutch Spring Compressor; H, Special Puller Tool Used for Pulling Out Outside Bearing Cup and Torque Tube.



The Foreman's Blackboard, Showing Repair Jobs Under Way.

done on the vise.

9. A special set of clamps to hold the valve springs compressed, thus eliminating the necessity for valve lifters.

10. Another time saver is an alignment rod for quickly lining up front wheels.

In addition to these special tools of their own development, they use Weaver jacks for rear axle work, special adjusting stand for motor work, which holds the motor in the position desired, electric valve grinder and drills, jacks, clamps and brackets for the removal and installation of motors, traveling hoists and portable hoists and every other form of standard equipment that will save time and labor.

All tools and equipment are given out to mechanics on checks and a report is immediately made of any damage to them, so that they can be replaced immediately or repaired.

There are other possibilities of modern methods and equipment, which do not necessarily mean increased profits so much as they are safeguards to already existing profits. This side of shop efficiency, of course, should include proper testing and inspecting, but should also include accurate measuring devices, gauges, jigs and dies which will make certain that every operation performed will be absolutely correct and satisfactory, so that there will be no comeback on the shop, because whatever system you may use in your shop the work must be properly executed, and if it is not properly done the first time it must be done over a second or even a third time until it is right. That is the unquestionable obligation of the dealer to the customer.

The Utility of the Foreman's Blackboard.

Since in their system they have broken each job into the smallest possible component operations, they frequently find that the small individual operations run through a great many jobs; for instance, the process of removing a cylinder head on a Dodge Brothers car is exactly the same in a carbon cleaning job as in a valve grinding job, therefore, the start of these two jobs is identical. Also the operation is the same in the examination of the piston rings, etc., and since the total time of the small operations on a job makes up the total time of the job itself, the minute a job is received they know three things about it: First, the nature of the work; second, the average number of hours the work should take; third, the charge made for the job. Consequently, in the handling of the work in the shop they have rigged up behind the clerk's desk several blackboards that are ruled to show: First, the job number; second, the location of the job, for every space about the shop is numbered; third, the customer's name; fourth, the mechanic's name; fifth, the time and date at which the job was started; sixth, the time and date at which it should be finished. To illustrate the working of the blackboard, if the shop employs 30 men eight hours a day, it has 240 hours of labor a day to sell. If, on the other hand, it is carrying over 140 hours of uncompleted work, it is perfectly apparent to the receiving clerk and shop foreman that only 100 hours of new work can be handled that day. Thus the shop clerk knows in advance how long each job will take and the shop clerk, the shop foreman and his assistants know in advance when each job should be finished; therefore, the question of promising work and delivering it on time is greatly simplified, for the shop foreman and his assistants have only to glance at the board to know which jobs should be finished, and it is their duty to see that these jobs are finished on time, both to save the customer from disappointment and the shop from the loss of a job. Therefore, it is the practise of the supervising mechanics and foreman to get around to every job at least an hour or two before it is due to be finished, and if there is any likelihood that the mechanic will be behind on his schedule to finish the job, then they must turn in and help him to get it finished on time.

This system of blackboard schedule keeps constantly before the responsible heads of the shop their obligations to the public and the firm, and it is a rare occasion for anyone to disappoint on the scheduled delivery of a job and a very rare thing for the firm to have to stand a loss on a job because an excess of time was consumed in the work.

Above were mentioned the inspection points in each job. They are generally placed on each job ticket (see illustration, Fig. 1), so that an inspection may be made before the work is covered up. For instance, in cleaning carbon there is an inspection required as soon as the carbon has been cleaned off and the valves have been seated. This inspection is to make sure that the cleaning has been properly done and that the valves do not need regrinding. If the valves should need regrinding it should unquestionably be economy for the customer to have it done while the head is off. Bishop, McCormick & Bishop have proved to their own satisfaction that these inspections have saved thousands of dollars to them and their customers in the course of a business year.

The Electrical Department.

The electrical department of the service station of Bishop, McCormick & Bishop, Inc. is installed in a room separate from the main work shop. This department is a particular example of their specialization. It was formerly their practise to have any one of several mechanics undertake electrical work, but they found that much better work could be obtained by having the best man specialize on that kind of work, because electrical work requires special equipment and machinery, from which satisfactory results cannot be obtained if six or seven men are working with it and the responsibility for its working efficiency is divided, nor can the same standard of uniformity of work be obtained under such conditions. On a standard practise it requires the same flat rate system throughout all departments, so they decided to eliminate electrical work from the repair shop and established a separate department for this class of work, completely equipped. They found it possible to handle all the electrical work that comes to them with one good electrical mechanic and a helper. This department has brought about several very satisfactory results; one is that they retain a profitable revenue-producing department, instead of passing the work to some outside concern; another advantage is that they eliminated for customers all the waste time and expense involved in sending out work and getting it back promptly. A car can be brought into their service station for combined motor and electrical repairs and the electrical work can be going on in the electrical department while the other work is being proceeded with in the repair department, and thereby there is very little chance of any holdup in the delivery of the work. They are enabled by this policy to keep within their own organization a man thoroughly capable of handling every electrical difficulty that may arise in the plant or in the use of their own cars and electrical equipment. In this department they handle all kinds of work on generators, magnetos, electric horns, etc., but they do not undertake any battery work, as the Willard Storage Battery Co. has an established service arrangement which gives the owner of a Dodge car free service in having his battery registered as soon as he receives his car and thereafter inspected at frequent intervals.

The C. O. D. Repair Order Form.

The size of this blank form is 11x8⅜ inches and is in triplicate, with two holes punched at the left for loose-leaf filing. The heading of the firm and "C. O. D. Repair Order" are the lines prominently displayed at the top in the centre. To the left of this main heading are these lines and blanks: Speedometer Record, Motor No., License No. To the right are No. R., Date, Name, Address, Telephone. Along the left side of the blank space for the particulars of the order are printed the conditions reproduced below, which the customer assumes when giving his order for work, and at the bottom is this line, "I hereby authorize the above work subject to the conditions printed on the face of this order blank," followed by a blank line for the customer's signature. On the back of this original order is a ruled form headed "Actual Working Time," with the repair order number duplicated. This original order form goes to the billing department to figure the total time charge, together with the additional charges for material and parts which are recorded in a ruled form on the back of the second sheet of the repair order. On the second repair order sheet the main heading is eliminated, with this substitution: "The repairs, as per instructions on original copy of the order, are hereby accepted as complete and satisfactory and the charges for same, amounting to $........, have been examined and approved by............... Customer. Date .... 191..." On the second sheet, occupying the space used for the conditions on the original sheet, are these lines: Inspected by, received by, promised for, with blank lines for the day and time; foreman's signature, final test by, with blank line for tester's signature, delivered by and blank line for signature of man who delivered it.

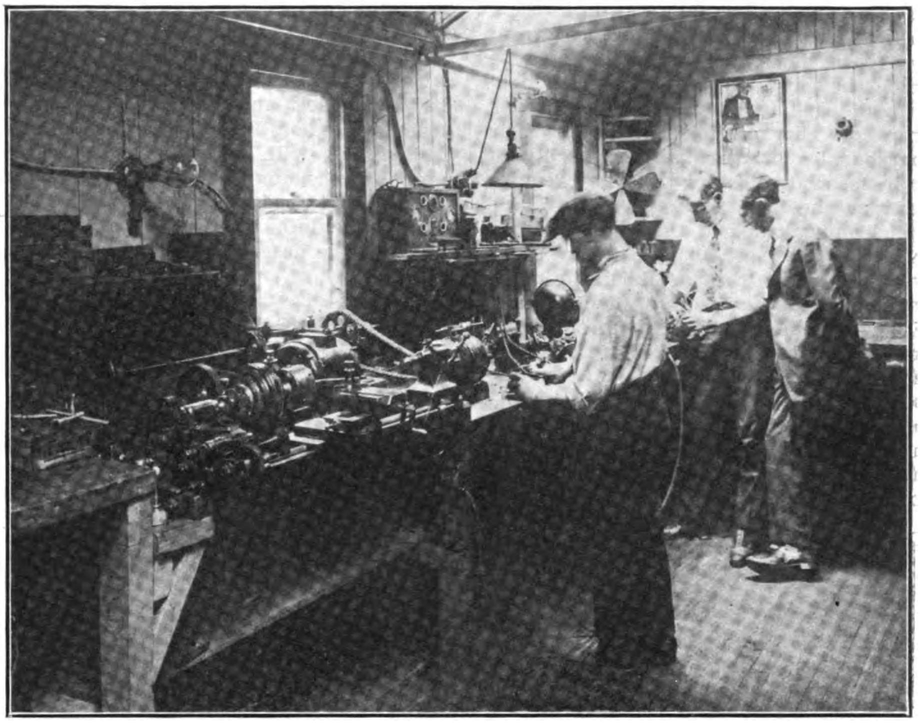
Conditions Printed on Original Repair Order.

All repair work is payable in cash on delivery.

All orders must be explicit, clear and definite.

Telephone orders are accepted only at customer's risk.

Promises made as to the delivery of work are dependent on conditions beyond our control. It is expressly agreed that this job is not to be delivered until it is fully completed as ordered.



The Completely Equipped Electrical Department.

Car must be removed immediately upon notification that work is completed or the car may be placed in storage at owner's expense.

It is further expressly agreed that Bishop, McCormick & Bishop, Inc. shall not be responsible for loss by fire or for loss or damage to cars, parts, articles or equipment, loose articles, furnishings or accessories by theft, accident or otherwise, unless a specific agreement to that end is made in writng, nor for detention or delay in delivery of cars, nor for consequent damages or loss of use of said car however caused. The receipt of the car at any time by the owner or his representative shall constitute a waiver of all claims for loss or damage thereto.

Cars are examined, tested and driven by our men solely at owner's risk.

Remove your switch key when you leave your car.

The third sheet of the repair order is of Manila cardboard and has only the heading of the original order sheet printed on it, and below this, blank space in which is duplicated the particulars of the repair job. The first sheet of the repair order is printed on golden rod bond and for the second sheet white bond paper is used. The object of the third sheet printed on Manila stock is that it is used to place on top of the other two sheets and forms a cover as well as a summarized index, for ready handling and reference when placed into the loose-leaf file.

The C. O. D. repair order form is simple and readily understood. The customer reads the conditions under which the firm accepts his order and by his also agreeing to these conditions there will be no misunderstanding on that score when the work is completed. The customer understands in advance that the terms are strictly C. O. D. and when he comes to take away the repaired car he signs the acceptance of the job and price as satisfactory and pays his bill on the spot, with all misunderstandings as to what he ordered and all chance for complaint about the charges eliminated.

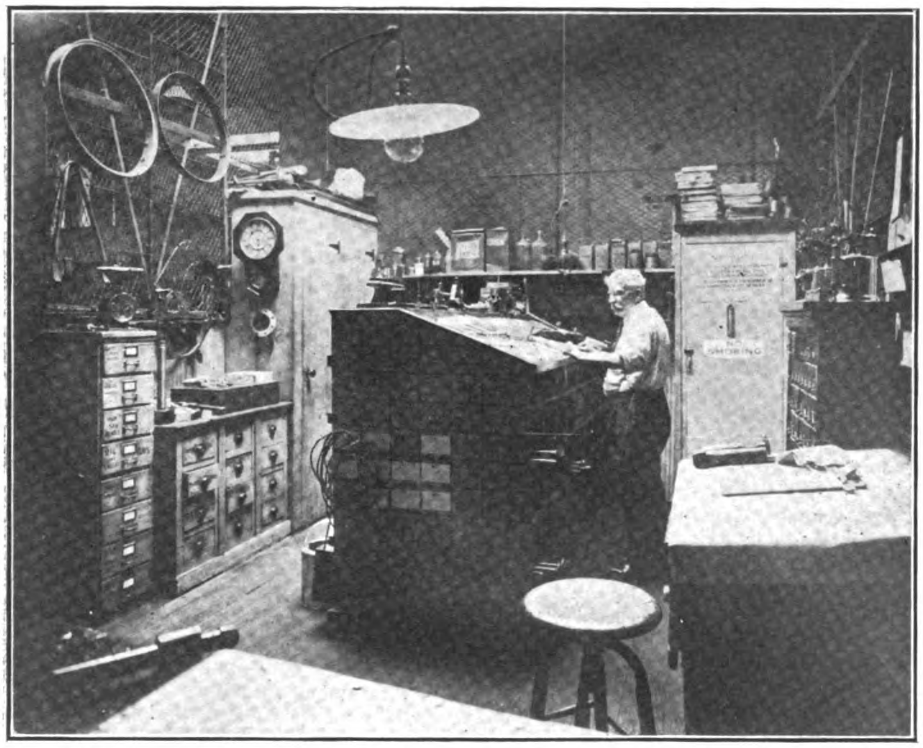
Other Forms That Make Up the System.

They use a simple repaired car release form, which is signed by the service manager and authorizes the foreman of the shop to release the car.

Their car record form is used to keep track of the movements of the cars they are operating in their own service. It is arranged so that they time the start of the car from their service station and the report contains at that time simply a statement of where the car is going, and upon the return of the car the operator stamps the time he returns and reports where he had gone, and, if possible, what streets he passed over. This may seem needless detail at first sight, but Bishop, McCormick & Bishop, Inc. have frequently found that where a great number of owners are operating on their dealer's license plates, that law suits may be avoided, so far as they are concerned, through their ability to eliminate their cars from having been in any accidents which their car records do not show. This form contains a space for a report of anything that happens and their men know that the report of an unavoidable accident will not get them into trouble with their employers and that it is necessary that the firm should have such a report in order that they can carry out their function under their insurance policy.

They use a requisition for parts or outside repairs, which is made out by the mechanic before starting work on any particular job, so that he will have immediately available every part needed on the job. Outside repairs cover such items as radiator, tire and body repairs and similar work they do not do in their own plant. These are all ordered from the parts department. In the sale of parts they use the ordinary triplicate form of cash ticket and a much larger form of charge ticket, because their charge sales of parts are invariably to their associate dealers and they require a larger sheet.

In keeping track of their stock record they use the perpetual card inventory system in which they establish the maximum and minimum supply of each part. When they have sold down to the minimum they immediately order up to the maximum. In that way an adequate stock of parts of all kinds is continually maintained. The form is ruled so that in the left column they receive, in the middle column they balance, and in the column on the right they deliver; therefore, it is a constant process of subtracting the right column from the left in order to show the balance on hand. These records are handled exclusively in the parts room by a clerk who has no other function than the maintenance of the stock records and making out requisitions for supplies to bring the parts department up on any particular part, from minimum to maximum. They also use a simple bin card to check each compartment or shelf in the parts room.



Section of the Parts and Supply Department.

They also have a requisition form used by all departments in requesting the purchasing department to order for them anything that they may need for their departments. In fact, their entire system is the most complete and practical the writer has ever seen.

Bishop, McCormick & Bishop, Inc. have 140 employees. The members of the corporation are: Eli H. Bishop, president; Burton T. Bishop, vice president; John McCormick, Jr., treasurer; Clifford M. Bishop, secretary, and John McCormick.

Editor's Note: In the August number a very interesting article on the used car and truck and commercial vehicle departments of Bishop, McCormick & Bishop, Inc. will be published. Their methods of using extension units with the Dodge chassis and the system they use to regulate their used car department will be described and illustrated in detail.

R M. TUSSING MAKES TRIP THROUGH EASTERN TERRITORY.

R. M. Tussing, advertising manager of the Northwestern Chemical Co., Marietta, O., manufacturers of the "Norwesco Chemically Correct Line" of automobile utilities, has been on a trip through the eastern territory, visiting New York and several other cities along the Atlantic. Mr. Tussing is one of the busiest men in the industry, as in addition to handling the arduous duties incident to placing the heavy advertising for "Norwesco," is editor of "Auto Suggestions," the house organ of the Northwestern Chemical Co., one of the liveliest publications in the trade, which is published under the appropriate slogan of "A Cutout of Gloom, a Radiator of Cheer and a Starter of Thought and Action."

L. H. MORRILL ASSISTANT ENGINEER WITH BUDA CO.

L. H. Morrill, who has been in charge of the engineering department of the Northway Motors Co. of Detroit, Mich., for the past two years, has resigned and accepted a position as assistant engineer in the engineering department of the Buda company of Harvey, Ill.

Packard Twin Six Continued

The third series Packard Twin Six will be continued for an indefinite time, according to an announcement of the Packard Motor Car Co.

The chief purpose of a new model is to incorporate the improvements which an added year's experience has shown to be necessary. In a time like the present the Packard company feels, according to an announcement of policy made public recently, that the bringing out of a separate model merely for the sake of change and of slight improvement would not be warranted. Packard prefers to devote its engineering and manufacturing talent to more urgent work and more far reaching results.

It is pointed out that production of passenger cars of the highest quality is being reduced far below normal demand. At a time when, in the ordinary year, makers are announcing new models, there now is every indication of a serious shortage. This shortage is due to the fact that such materials as chrome nickel steel, aluminum, bronze, second growth hickory and imported hides are exactly the things needed for instruments of war.

At the same time every condition of the times sets a premium on cars of character and lasting worth. A good car is necessary to the efficient man of affairs. It is to him a mode of travel, assurance of swift and safe transportation over any road. Consequently, an increased demand is created at the same time that a shortage of materials cuts down the supply.

SEMI-ANNUAL MEETING OF AUTOMOTIVE ELECTRIC ASSOCIATION.

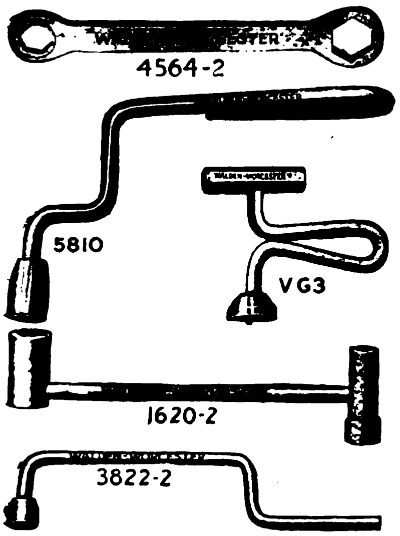
The third semi-annual meeting of Automotive Electric Association was held at Lake Placid Club, Essex County, New York, July 10, 11 and 12. The attendance was the largest of any meeting held thus far, every member company being well represented.

Consideration was given to the question of extending the membership. The association approved the report of the standardization committee, Mr. B. M. Leece, chairman, and favorable comment was made in regard to the extent and quality of standardization work accomplished by the S. A. E. electrical equipment division at the Dayton meeting.

The legal and patent committee submitted a progress report. A standardized contract form was completed and recommended for use by the various member companies. In connection with the contract form, uniform service policies were also outlined.

Business sessions were completed late Friday, but many of the members and their wives remained at the club over Saturday and Sunday, enjoying the mountain air and the incomparable Adirondack scenery.

TOOLS AND EQUIPMENT SECTION



Walden-Worcester Special Wrenches for Ford Cars have been tried out by garage repair men and Ford owners. They have been found to be most efficient tools —especially useful in getting at nuts and bolts inaccessible to ordinary open-end or monkey wrenches.

The ratchet wrench, No. 4564-2 with an 11/16 inch hexagonal opening, was particularly designed for use on transmission bands (brake and reverse), Ford car. The opposite end, 15/16 inch, is for use on Champion X spark plugs and slow speed connecting lock. This is a combination tool which has been found to be most serviceable. The price of this tool is 90 cents.

The Triple Socket Wrench, No. 1620-2, is really three wrenches in one. The socket sizes are ⅝ inch and 1½ inch hexagon and 9/16 inch square. This is our new improved "Tomahawk" wrench.

The double-end socket has been designed particularly for clearance around cylinder head bolts and other places. Used on cylinder head, brake and reverse support, cylinder inlet and outlet connections, differential case, drive shaft roller bearing, front spring tie, spring, run board fender, rear axle housing, crank case (lower cover), controller shaft bracket and 9/16 square socket on main bearing bolt head. The price of this tool is 60 cents.

The special type wire handle wrench, No. 3822-2, is used on flywheel cap screws, Ford car; heretofore considered an impossible place for a socket wrench. It is an ugly place made easily accessible. The socket size is 11/16 inch hexagon. It sells for 50 cents.

The all-steel wire handle valve grinder No. V63 has a ⅝ inch bar handle, which swivels on a cone bearing. The socket is shaped to fit valve heads and is fitted with hardened steel pins. The valve grinder sells for 45 cents.

Wrench No. 5810 is a specially designed connecting rod wrench. It fits all connecting rods on a Ford car, including the fourth connection. This is the original design, the first wrench made to reach the fourth connection without removing the engine from the car. It sells for 45 cents.

Manufactured by the Walden-Worcester, Inc., Worcester, Mass. Write for catalogue.

LABOR-SAVING TOOLS AND EQUIPMENT ARE NEEDED IN GARAGE.

Repairing Automobiles Requires Special Tools and Machinery for Efficient Work.

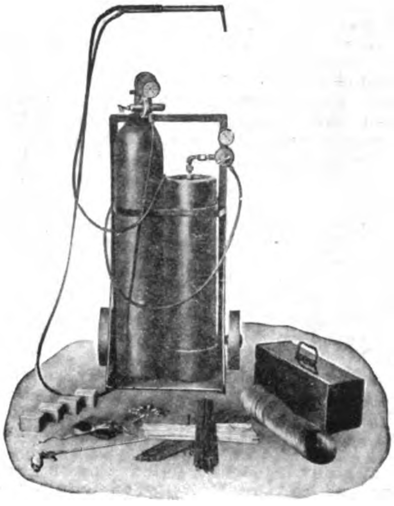
The automobile taken as a whole is quite a complicated mechanism, and vastly different from any other mechanically operated product, a fact which has called into existence a large number of tools and devices designed solely for the purpose of facilitating its repair, adjustment and maintenance.

A good workman without efficient tools and other mechanical equipment at his best can do but a make shift job. Time and expense is saved in overhauling the car by first being provided with the necessary tools and other mechanical equipment. A set of modern wrenches that enable one to conveniently reach all nuts and bolts is an indispensable working unit. There are well known sets of special motor car wrenches that were particularly designed to meet all requirements in overhaul and adjustment work. They are put up in convenient order so as to be at the quick command of the worker. They will pay for their initial cost many times over. In overhauling a Ford car the workman should first provide himself with a complete set of socket wrenches.

One of the most essential tools is a good valve grinder, and a valve reseater should be included. Other tools that are essential in repair and overhaul work are: Valve lifter, wire brush, tinner's snips, head vise, small bench vise, piston ring remover, hack saw, box wrench, soldering copper and blow torch, small riveting hammer, machinist's hammer, screw drivers, pipe wrench, monkey wrench, adjustable end wrench, pliers, set of center punches, spark plug socket wrench, carbon scrapers and bearing scrapers, and a set of files.

Equipment of a repair shop calls for an even more extensive outfit if the proprietor expects to meet competition and do a profitable business, as every labor saving tool means time and money saved and will usualy earn its first cost in a short time. There are numerous machines designed particularly for the small repair shop or garage which eliminate much labor, and enable the repair men to do work that is satisfactory, and this is essential, as nothing will kill a repair business quicker than poor work.

Since the slogan of conservation has been adopted throughout motordom with the object of releasing mechanics for war work, every motorist should provide himself with all the tools necessary to make ordinary repairs and adjustments for both patriotic as well as economic reasons.



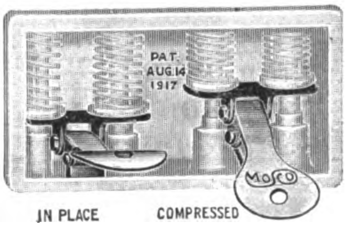
Dyer Welding and Carbon Outfit.

The Dyer Welding and Carbon Removing Outfit has two utilities included, that of welding and cutting by the oxy-acetylene process and of removing carbon from the combustion chambers and cylinders of engines. With this apparatus the garage man and repair man can quickly and satisfactorily do all kinds of brazing, welding of broken parts, frame straightening and many other things requiring the use of a welding outfit. The material used in this outfit is of the highest grade. The regulators are strongly built and accurate. The Dyer Co. uses the United States Gauge Co.'s gauges, and the hose used is of extra heavy five-ply fabric. The outfit includes a truck made of the best grade of boiler plate strongly welded. The torches are simple in construction and easily handled, being of light design and highly efficient. The welding torches cannot back-fire under any circumstances and can be operated to a low enough acetylene pressure to practically empty the gas cylinders.

Manufactured by the G. H. Dyer Co., Cambridge, Mass.

The Mosco Valve Spring Compressor for Fords eliminates what is usually a troublesome operation, viz., the compressing and removing of valve springs. By using this simple device springs can remain in position until the grinding of the valves is completed. The compressor is placed in position as shown in the left of cut, pushing it back against the cylinder wall, making sure that the tongue which hangs down is over the edge and resting in the channel, then the handle is pushed down as far as it will go. This operation compresses two valve springs at one time and permits removal of the pins. If the pins are crosswise the valve is turned until they are in the proper position to pass through the slots in compressor. After the valves are ground the operation is reversed. The compressor is made of heavy pressed steel.

Manufactured by the Motor Specialties Co., Waltham, Mass. Price, 50c.



Mosco Valve Spring Compressor for Fords.

The Stenman Electric Valve Grinder has been wonderfully improved by several convenient and practical features, which includes a larger handle, giving a better grip and balance with switch in the handle, at the finger tips and affording perfect control; flexible steel conduit for connection wires, which is galvanized and insulated, similar to that used on speedometers and which will not break or crack like ordinary cable. This cable is fitted with separable attachable plugs of a special composition and detachable both at the handle and lamp socket. All the gears are made extra heavy of phosphor bronze.

It is designed to save labor in valve grinding and will handle truck, tractor, aeroplane, marine or stationary internal combustion engine valves. This machine will operate from either direct or alternating current and can also be operated from any standard lighting circuit. Any valve can be reground in either the L, T or I head construction and the valve seat renewed in from three to five minutes as compared with from 15 to 20 minutes required with hand tools. It is now being used by the government at Camp Devens, at various aviation fields and by such concerns as the United States Steel Co., the Western Electric and Standard Oil companies and numerous garages throughout New England and New York state. It is thoroughly practical for any size establishment.

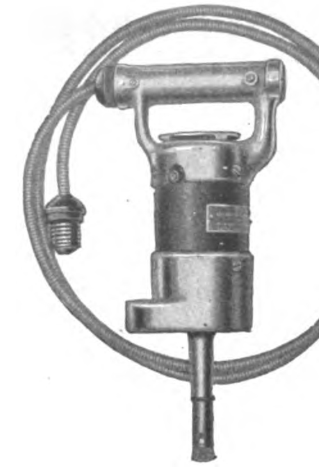
Manufactured by the Stenman Electric Valve Grinder Co., Inc., 42 Southbridge St., Worcester, Mass.

The E. & S. Power Hack Saw is a high speed machine with a sawing capacity of 4 by 4 inches. The saw arm takes a nine-inch blade and is driven by a crank working between V bearings and is equipped with a sliding weight to regulate the pressure to secure the best results from the saw blade. It has an automatic stop and is driven by a 2x10 crown pulley, or a crank can be furnished for hand driving.

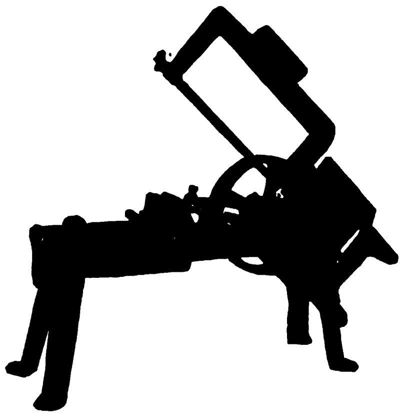
Manufactured by Ellis-Smith Manufacturing Co., Inc., 216 Niagara St., Buffalo, N. Y. Price, $18.

The Sioux Refacing Tool is designed for refacing valves and will reface any valve of standard type, that is, with 45 degree face and up to three inches in diameter. For valves of 30 or 60 degree faces extra cutters are obtainable. The cutters are made of tool steel, hardened, tempered and cut to the correct angle. The manufacturer claims that no experience is necessary for operating the tool and that finished jobs are obtainable in a surprisingly short time, even by inexperienced men.

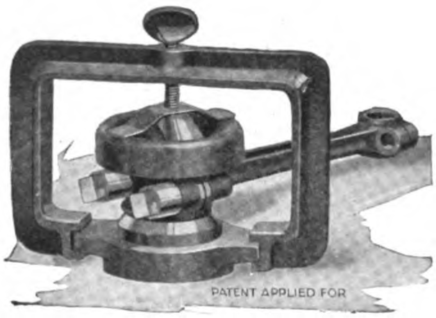
Manufactured by Albertson & Co., Sioux City, Ia. Price, $6 with one 45 degree cutter; extra cutters, 75 cents each.



Stenman Electric Valve Grinder.



E. & S. Power Hack Saw.



The Babbitter for Ford Cars.

The Babbitter for Ford Cars is especially designed to re-babbitt Ford connecting rods, quickly, economically, accurately and in a serviceable manner. Ford parts are standardized, so that the mandrel of this tool could be made so that it would cast the bearing to the thousandths part of an inch, ready to fit the crankshaft for the usual "burning in" process. After the metal is cast and hardened the top of the mandrel is struck a blow with a hammer to disassemble the parts and a few strokes of a rough file is all that is necessary to finish the rod for the engine. This device will babbitt Ford connecting rods at the rate of three to four an hour and at a saving of $1.75 to $2.50 on a set of four connecting rods.

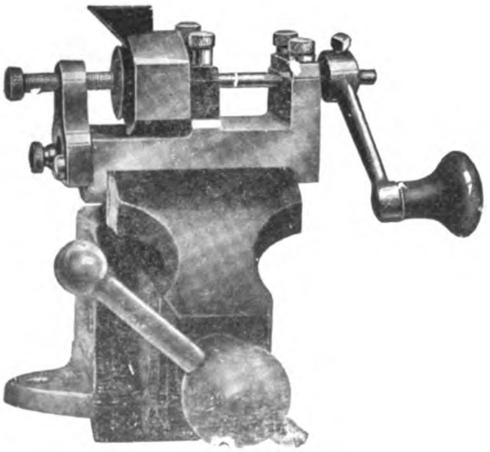
Manufactured by the Burlington Machine Works, Burlington, Ia. Price, $15. Shipping weight eight pounds.

The Johnson Electric Grinding and Buffing Tool is operated by a self-enclosed motor, with all its working parts enclosed in a dirt proof casing. The motor may be had in a number of windings at speeds of either 1800 or 3600 revolutions per minute. For garage work the arbors may be fitted with two grades of emery wheels; for tire vulcanizers a buffer and grinding wheel. The manufacturers claim the machine is pleasing in appearance, both easy running and silent in operation. The illustration shows the machine upon a standard mounting, but the grinder unit may be purchased or used separately.

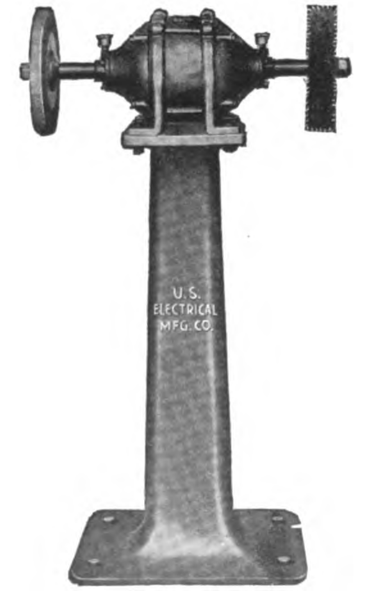
Manufactured by the U. S. Electrical Mfg. Co., 459 E. Third St., Los Angeles, Cal.

The Universal Cylinder Reboring Tool is simple in design and effective in action. The cutter head has six cutter surfaces that are adjustable in unison. A bevel expansion ring is fitted into the cylinder which is to be rebored and the bevel pilot head acts as a centralizing device. There is also an oversized securing ring, which follows the new cut, thus insuring an absolute rigid tool and perfect central device. This tool is intended to be used either by hand or under a drill press and on detachable head cylinders the reboring can be done without removing the cylinder block from the car. The operator can set the cutters at any desired size within one-half of one-thousandth of an inch, enabling him to rebore the cylinder in one operation to fit pistons already made reregardless of the oversize of the pistons. The value of this tool in a service station or repair shop is largely in that it is available at any time without power and the adjustments for work can be made without chance of error.

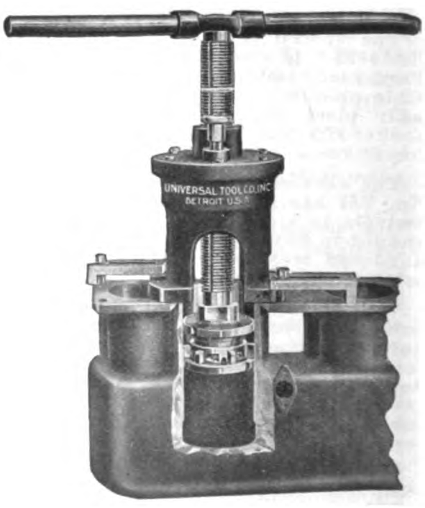
Manufactured by the Universal Tool Co., Detroit, Mich. Write for prices and liter- Detroit, Mich.



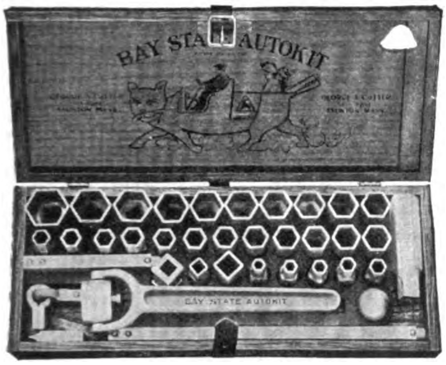
The Sioux Refacing Tool.



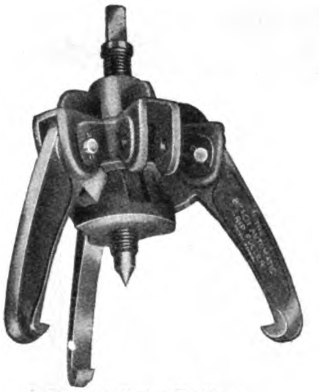
Johnson Electric Grinding, Buffing Tool.



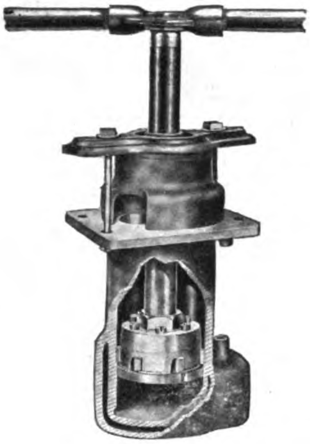
Universal Cylinder Reboring Tool.

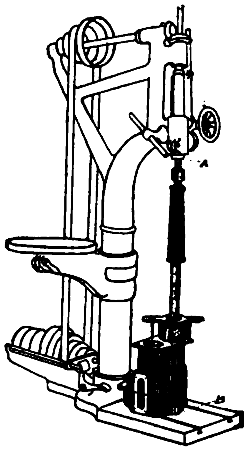


Bay State Autokit Wrenches.



Beach Grip Puller.





The Socket Wrench Set herewith illustrated consists of a No. 489 ratchet socket wrench with a ¾-inch hexagon socket (which may be obtained separately) and four extra sockets fitting it. These extra sockets have ⅝, 11/16, 13/16 and ⅞-inch hexagon openings. The ratchet socket wrench has a seven-inch black enameled iron handle and a very strong ratchet that can be used for either right or left hand work. The lignumvitae head runs on ball bearings. Each set is packed in a strong and attractive hard wood box.

Manufactured by Goodell-Pratt Co., Greenfield, Mass. Price of set, $4. Price of socket wrench with ¾-inch hexagon socket, $2.

The Portable Floor Crane has many uses and the saving of time accomplished by its employment make it almost invaluable where much automobile or machine work is done. The crane illustrated is made of steel with a cast iron base. Standard cranes are made in a number of sizes and have capacities ranging from one to two tons with lifts from 6½ to 9½ feet according to size. The length of overhang is 30, 34 or 36 inches.

Manufactured by the United Engine and Manufacturing Co., Hanover, Pa.

The Beach Automatic Grip Puller can be used for removing either wheels, gears or flywheels and is so designed that when pressure is applied by turning the screw the jaws are pulled towards the common centre, thus making a positive, but automatic grip.

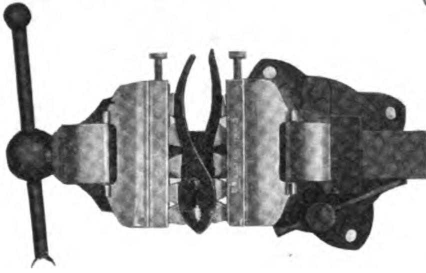
The body of the device is so designed that the jaws are removable, simply by the slipping out of the cotter pins and cross pins, thus permitting the insertion of larger or smaller jaws. Two sets of jaws are furnished; three 7½-inch jaws which open to 10 inches, and three 12-inch jaws, which open to 18 inches. Either a two or three-jaw combination may be used, as there is an extra jaw socket directly opposite one of the other jaws.

Manufactured by the Greb Co., 202 State St., Boston, Mass. Price $20. Liberal discount to dealers and jobbers.

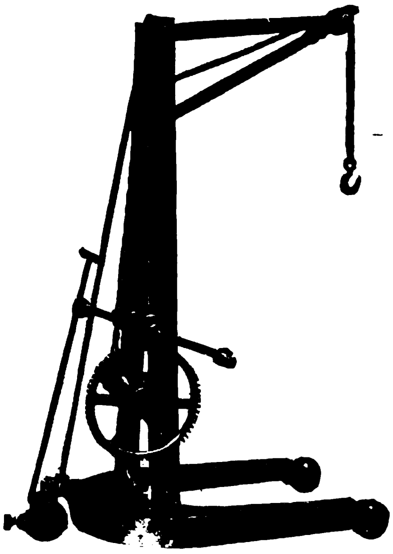
The "Power" Valve Spring Compressor eliminates the necessity of removing the springs, for grinding or other repairs.

This device consists of a small, flat platform or table, which is cut with slots in which the valve stems fit, and through which the valve keys, pins or split washers are removed. This table is mounted upon a short lever, which is provided with a leg or tongue for prying. The device is slipped over the valve stems, the lever depressed, raising the springs, and the pins or keys removed. The valve may then be taken from the engine, while the compressor remains in place until the valve is replaced, the key inserted and the compressor removed.

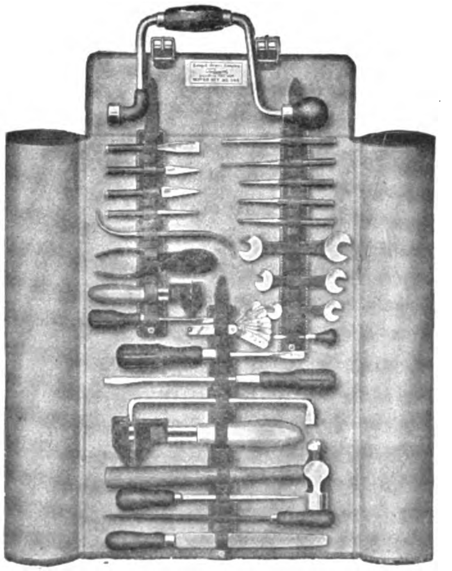
Manufactured by Warnola Manufacturing Co., 73 Wooster St., New York City.



The Universal Vise Attachment.



Portable Floor Crane.



Motor Set.

The Storm Standard Reboring Machine is playing a very important part at the present time in the conserving and renewing of old engines of all kinds. The extreme simplicity and the ease of operation, together with the fact that the machine may be used either by hand or in connection with drill press or other power, making it admirably adapted for the use of the average garage. This machine is provided with six cutters, which are adjusted by means of a cutter adjuster bar and which may be set to cut to the different oversizes. The total adjustment of the Standard equipment is from 2⅝ inches to five inches, with special equipment, larger and smaller made up to special order.

In addition to this machine the company manufactures a special Ford and Ford-Dodge machine, as well as other equipment for use in connection with the renewing of engines, including piston vice, valve tools, connecting rod reamer, jigs, gauges, etc.

Manufactured by the Storm Manufacturing Co., Thompson, Ia. Write for prices and literature.

Bay State Autokit Wrenches will remove any nut, bolt or cap screw, reaching it wherever it is located, at any angle. The outfit includes an adjustable ratchet handle and shank with a series of sockets, constituting a complete combination with which every kind of work on a car can be accomplished. These tools are of proven design and made of the highest quality material, being guaranteed 100 per cent. efficient, and as the makers claim will give extreme satisfaction in the hardest service.

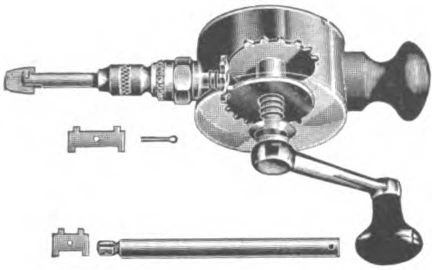
Manufactured by Bay State Pump Co., Boston, Mass. Write for prices and literature.

The Universal Vise Attachment is based upon an entirely new mechanical principle. It instantly converts an ordinary square-jawed vise into a tool of a thousand purposes, through the independent action of each "tooth" or "gripper" of its jaw in clasping the form or shape upon which work is to be done. This vise is very efficient for holding irregular shapes. It is made of cold rolled steel, tempered and electrically welded and will reduce the working time by half where irregular shapes are involved.

Manufactured by the Universal Equalizer Co., Cincinnati, O. Price four-inch set, $8; five-inch set, $9.

The Motor Set is a handy tool kit, holding tools for making ordinary road repairs on an automobile. They are contained in an extra heavy bound canvas roll and are held in place by long leather straps.

Manufactured by Goodell-Pratt Co., Greenfield, Mass. Price $18.



Sioux Valve Grinder.

The Starrett Patent Magazine Screw Driver is fitted with four blades of different widths from 3/32 to ⅜ inch, any of which may be taken from the telescope handle and inserted in the end, where it is automatically locked and firmly held for use. The blades are carried in the handle, where, by a spring pressure, they are held from rattling when carried in the pocket, or from being lost when the cap is off. While the cap may be readily pulled off or put on, it is rigidly held from turning and frictionally held from coming off, with no screws to bind or bother.

Manufactured by the L. S. Starrett Co., Athol, Mass. Price $1. Extra blades, 10 cents.

The Stevens Bearing Scrapers are made from drop forgings, carefully hardened and ground to edge. They are made in convenient shapes and come in sets of three as illustrated, the largest being 13 inches long. This is one of 200 products described in the new Stevens Catalogue 86-A, copies of which are to be sent free to dealers.

Manufactured by Stevens & Co., 375 Broadway, New York, N. Y. Write for prices.

The "Little Giant" Gear and Wheel Puller is made of four puller arms of drop forged steel with hooks and adjustable stud bolt, which gives the device an adjustment range of from 2¼ to 13 inches when "extension arms" are used. The puller arms are so arranged that with the draw screw in place there are four pulling points, so distributed that there is no need for a holding or steadying bar. The puller prongs are designed to give maximum strength, yet to occupy little room. For this reason they may be used for removing timing gears or other gears where room is limited.

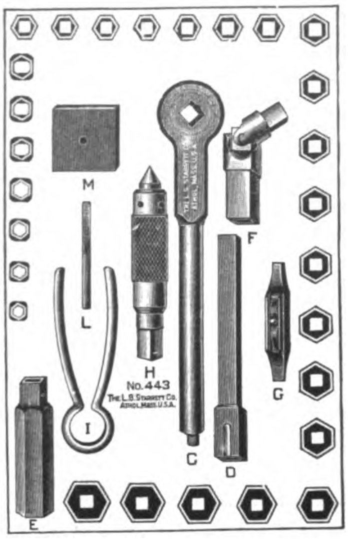
This device is handy in removing inside work and for inside pulls. For removing small pulleys or gears a pair of extension arms may be used. These arms are provided with a locking arrangement for fastening to the pulling arms and provide for two pulling points, rather than the four as in the primal attachment.

Manufactured by Premier Electric Co., 4032 Ravenswood Ave., Chicago, Ill. Price for "Little Giant," $10.00. Extension arms, $1.00.

The Dover Electrically Heated Soldering Iron consists of a Vea heating unit tightly enclosed in a steel tube to prevent damage from careless handling. A flanged copper core runs the full length of this heating element and is connected with the soldering tip. Around the core is a vitrified clay tube upon which is wound the resistance coils. The Vea insulating material, which is said to be a non-conductor of electricity, but a good conductor of heat, is forced in between the vitrified tube and the copper core, and between the coils and the steel casing, under hydraulic pressure, which prevents all danger of burning out coils. The iron is so designed that the tips may be removed for replacement or for changing with other styles of tips. Irons may be obtained wound for any voltage ranging from 50 to 250, and in various sizes, for light and heavy work.

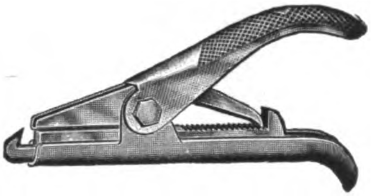
Manufactured by the Dover Manufacturing Co., Dover, O. Write for prices.

Auburn Valve Lifter.

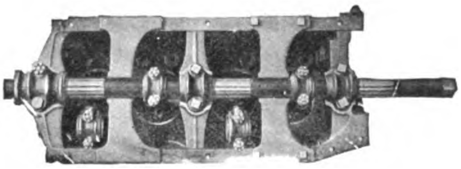


Starrett Ratchet Wrench.

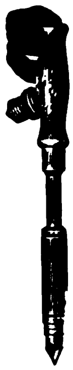
Magazine Screw Driver.



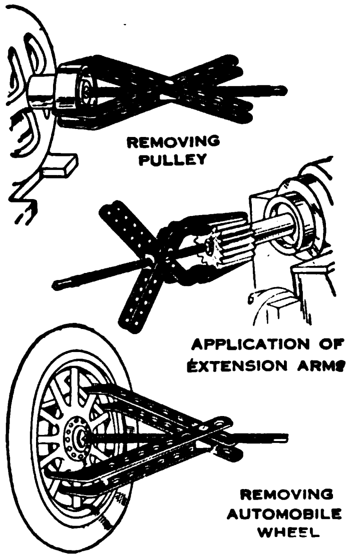
May's Cotter Pin Puller.



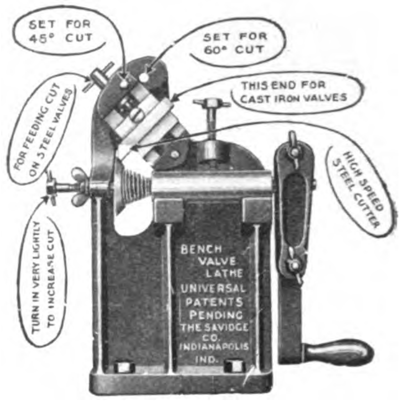
Dyer Bearing Reamer.



Dover Soldering Iron.



Little Giant Gear and Wheel Puller.


SET FOR 45° CUT
SET FOR 60° CUT
THIS END FOR CAST IRON VALVES
HIGH SPEED STEEL CUTTER
FOR FEEDING CUT ON STEEL VALVES
TURN IN VERY LIGHTLY TO INCREASE CUT
BENCH VALVE LATHE UNIVERSAL PATENTS PENDING THE SAVIDGE CO. INDIANAPOLIS IND.

Universal Valve Lathe.

The Starrett Ratchet Wrench consists of a ratchet with reversible pawl and a long wrench handle. With this wrench is also furnished an extension to reach in otherwise inaccessible places; also a universal joint for turning nuts and bolts when it is impossible to get the wrench on at right angles to the end of the bolt; a spark plug socket; a drilling attachment which takes a standard square shank drill from ⅛ of an inch to ½ inch diameter, and a screw driver with reversible ends, together with several adjustments to go with the drilling attachment.

Manufactured by the L. S. Starrett Co., Athol, Mass. Price complete, $15. Without drill fixtures, $12.

The Dyer Bearing Reamer greatly facilitates the work of fitting main and connecting rod bearings of an engine. The tool leaves a smooth, glassy finish to the bearing surface. The reamer has leads of .004 of an inch at the end of each fluke and is held in line by two adjustable bearings, which are bolted to the crank case while it is being used. It can be seen from the illustration that by the employment of this tool the lining up of all the bearings is fully assured.

Manufactured by the G. H. Dyer Co., Cambridge, Mass. Write for catalogue of tools and prices.

The Universal Valve Lathe is light, compact and cuts quickly and easily. It can be clamped in a vise or held in one hand and operated with the other. One does not have to be a machinist to operate this lathe. While it is made for any size valve the two steel sleeves furnished, one for 5/16 valve stem and one for ⅜ sizes, will handle 90 per cent. of the valves on the market. Each lathe is fitted with a high speed steel cutter ground ready for use.

Manufactured by A. C. Savidge, 611 N. Capitol Ave., Indianapolis, Ind. Price, $10. Extra sleeves, 75 cents. Extra cutters, 75 cents.

The Sioux Valve Grinder consists of a handle or crank operated wheel which drives through suitable gears the grinding tool. The gears are so arranged that by a continuous turn of the crank the tool is given a reciprocating motion, always traveling slightly forward in one direction, then in the opposite, until the whole circumference has been made. With the tool are furnished three special valve head fittings and a special length of shaft for extension purposes.

Manufactured by Albertson & Co., Sioux City, Ia. Price $6.

The May's Cotter Pin Puller reaches after the cotter pin, straightens it if bent and once taking hold, withdraws it in safety and holds it until released. In a garage or repair shop where much of this work has to be done, this tool will save much time and trouble. The puller is well machined, mechanically correct and is finished with a heavy nickel plate to prevent rusting.

Manufactured by the Brewer Titchener Corporation, Cortland, N. Y. Write for prices.

The Dyer Towing Device is a simple arrangement for fastening to the front axle of a Ford car and making possible the towing of the car by another without the aid of a second driver. The device is designed for attachment to the axle and is fitted with a clamp, which is fastened to the steering spindle connecting rod. The other end of the device is fastened to the towing car. When a corner is turned the rear car is automatically steered by the device.

Manufactured by the G. H. Dyer Co., Cambridge, Mass. Write for prices and literature.

The Perfection Wheel Liner is constructed of cold rolled steel and fitted with two indicating scales and two forks, one on each end. Between the two scales, which indicate in degrees the camber of the wheels, is a third scale, which gives the distance between the ends or sides of the wheels. As can be seen from the illustration the device may be used to get the exact distance between the tops and bottoms of the wheels, at the front or at the rear. Comparisons with measurements taken of the front wheels and similar measurements taken of the rear will indicate any out of alignment that might exist. Spring tension automatically holds the gauge tight against the felloe of each wheel.

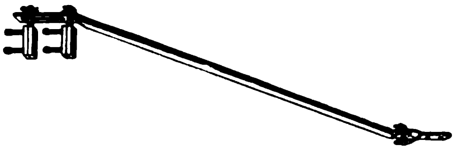
Manufactured by International Motor Products Corporation, 2037 S. Wabash Ave., Chicago, Ill. Write for price.

The Stewart Handy Worker is, primarily, a vise, but of special construction, so that many tools can be used with it. As a vise the jaws open to 4½ inches and being faced with steel, are practically indestructible. The jaw opening mechanism is operated by a hand wheel and screw, the sliding jaw being supported upon two heavy round pieces of cold rolled steel. The sliding jaw is fitted with a three-gear reduction spindle, with provision for handle upon each gear. The upper spindle extends through the jaw and is fitted with device for holding square shank drills, thus forming a drill press

Manufactured by the Backus Novelty Co., 12th St. and Central Ave., Chicago, Ill. Price $16.

The Mosco Valve Grinder works on an extremely simple principle. As the larger part of the grinder is held in place the handle at the side, which is attached to a chain coiled on a pulley inside the casing, is pulled slightly. The motion imparts a rotating motion to the valve tool and the makers claim a noticeable increase in valve grinding time. The device is fitted with two tools, one standard, the other for Ford valves.

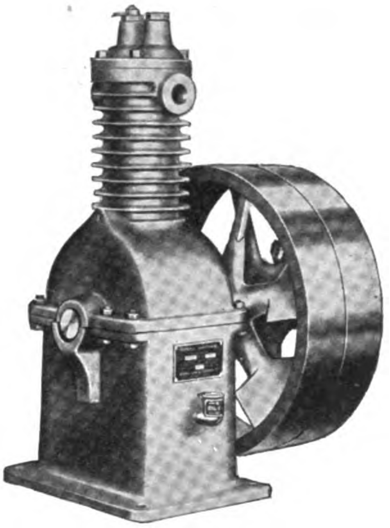
Manufactured by Motor Specialties Co., Waltham, Mass. Price $1.75.



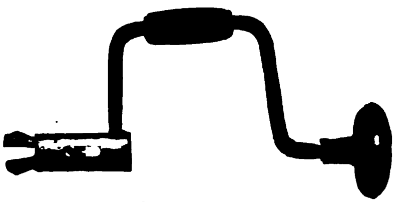
Dyer Towing Device.

DODGE KING BOLT WRENCH
WALDEN-WORCESTER

Dodge King Bolt Wrench.



Curtis Air Compressor.



Rim Wrench.

An Adjustable Wrench is shown of a somewhat different design from the ordinary wrench in that the adjustable jaw slides on two steel guide rods, which are cast into a polished aluminum handle. The jaws are made of case hardened steel and the adjusting nut of the small size wrench is made in two sizes, six and 10-inch.

Manufactured by Goodell-Pratt Co., Greenfield, Mass. Price on large size, $2; on small size, $1. Write for special catalogue of 1500 tools.

The Utility Universal Rim Wrench is light, compact and fits easily into the tool box without folding. The brace is nickel plated, the tube contains jaws finished in black enamel and the handle corresponds.

Manufactured by the Hill Pump Valve Co., Chicago, Ill. Price, $1.50.

The Dodge King Bolt Wrench meets the long requested demand by repair men for a special wrench on King bolts and it is now manufactured in quantity so that the wrench can sell at the list of $2.50, making the net price to the repair men so small that they cannot afford to be without one of these tools. It is made of the best steel and is light and compact, fitting the hand readily.

Manufactured by the Walden Worcester Co., Inc., Worcester, Mass. Price, $2.50.

Rofilo is an ingenious little device for the elimination of work in grinding valves. It consists of a steel frame carrying 24 small rolling files, set in the frame at the angle of the valve face. Rofilo is placed in the valve seat and the valve is replaced with its face resting upon the files in the cage. The valve is then revolved in one direction at high speed with an electric or hand drill. The files roll between the valve and seat faces and the cutting action results from the tendency of the files to adjust their single peripheral speed to the many peripheral speeds along the conical face of the valve and seat. There is the same amount of slippage between the files and seat, with the result that the cutting action on both surfaces is simultaneous and equal, resulting in a smoothly cut or filed surface on both the valve and the seat, the two surfaces being parallel.

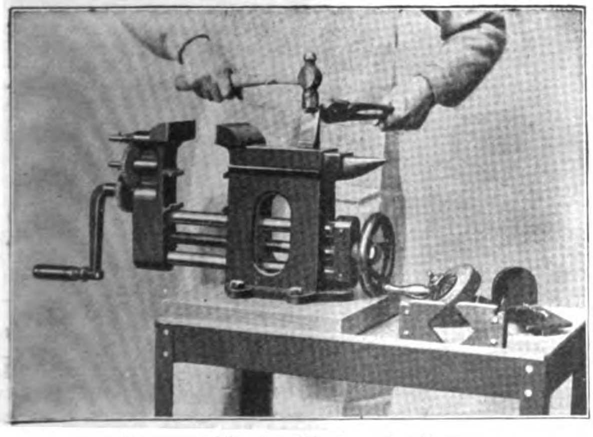
Distributed by the Rofilo Sales Co., 1317 L. C. Smith Bldg., Seattle, Wash. Write for prices and literature.

The Curtis Air Compressors for garages and service stations are said to possess exclusive features of unquestioned merit and are guaranteed by the manufacturers who have manufactured pneumatic machinery for over 25 years to furnish a continuous supply of cool, pure, clean air, free from oil. In the Curtis compressors the oil leakage into the cylinder has been overcome by their patented control splash oil system, which regulates the oil supply, permitting only enough oil to reach the cylinder to lubricate it without leaving any excess that can be carried into the discharge line. The result is that practically no oil can get into the tires to rot them and it is claimed that the compressor will run on one-tenth the amount of oil ordinarily required by a splash oil compressor. Handled through the jobbing trade exclusively.

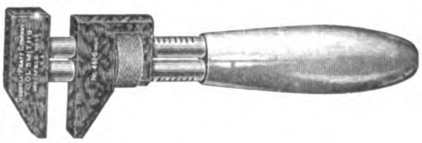
Manufactured by Curtis Pneumatic Machinery Co., 1621 Keinlen Ave., St. Louis, Mo. Write for prices and catalogue.

TOOL
FORD
PULL
MOSCO
STANDARD TOOL

Mosco Valve Grinder.

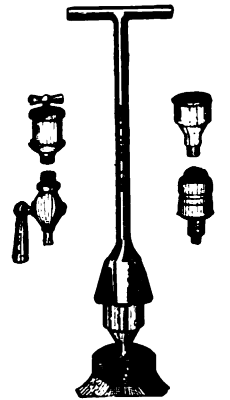


Stewart Handy Worker in Use.

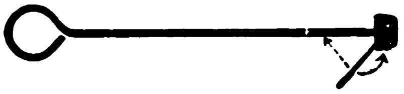


Adjustable Wrench.

Rofilo Valve Grinder.



Universal Grease Cup Wrench.



Fawsco Combination Cleaner.

The Continental Motor Stand is universal handling the Ford engine or any three-point suspension engine from any kind of a passenger car, truck or tractor. The stand is portable and can be moved to adjust the engine in any position desired.

The engine is fitted to the stand in the same position that it is fitted to the chassis and all bolts and clamps necessary are furnished as complete equipment with the stand. It is adjustable in width from nothing to 30 inches. Has a five-inch adjustment in height and can be locked in over 25 different positions.

Manufactured by the Continental Auto Parts Co., Knightstown, Ind.

The Fawsco Combination Wrench is a combination gasoline gauge, oil cock wrench and cleaner, and the claim is made that it will not only measure the gasoline in the tank, but provide the only sure means of learning whether there is oil in the crank case, as the pin will prove if the oil cock is stopped up or the oil exhausted. It is made of nickel plated, coppered, Bessemer steel rod, with a very high class finish. They are put up in complete packages for the convenience of the trade and dealers are furnished with a very handsome counter display card, upon which is mounted one of the tools, which helps considerably in their sale.

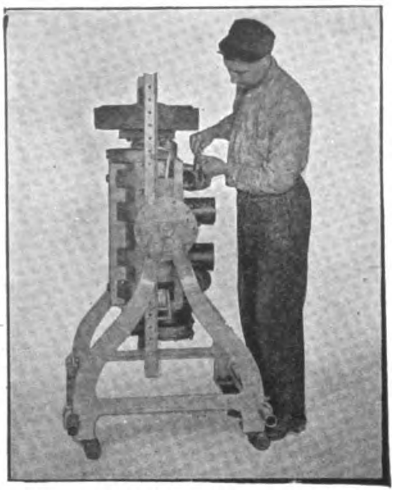
Manufactured by J. H. Faw, Inc., 37 Warren St., New York City. Retail price 35 cents.

The Universal Grease Cup Wrench is designed to save time, labor and temper. It fits all sizes and types of grease cups without adjustment. It may also be used for other work about the car, such as turning hot or greasy primer cocks, pet cocks or drain cocks, and it will be found especially convenient for reaching cups and cocks in out of the way places.

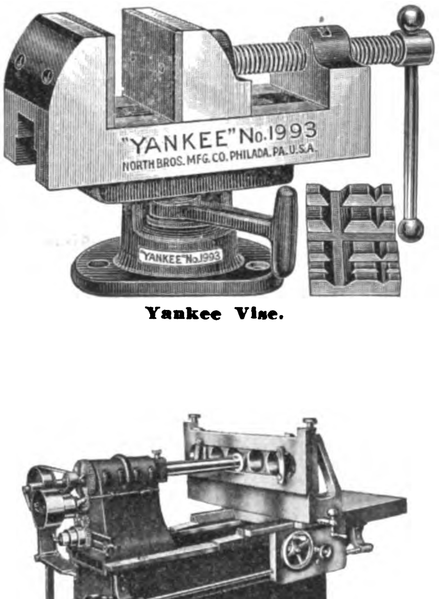
Manufactured by the Prismolite Co., Columbus, O. Price, 50 cents.

The Schmidt Cylinder Grinding Machine is designed for grinding gasoline engine cylinders from the smallest motorcycle type to a six-cylinder block 21½ inches long. The base is of the cabinet type and designed to eliminate all possible vibration. The boring spindle, which is designed for strength and rigidity, is six inches in diameter by 12 inches long and carried upon heavy bearings. The face plate upon which the cylinder block is mounted while being ground is large and heavy, and has both a cross and lengthwise feed, the latter being automatic. It is also fitted with two knurled nuts by which the plate may be raised and lowered, thus facilitating the centering of the cylinder. The length of the bed is 55 inches and the width 15½ inches. The height from the bed to the centre of the spindle is 12 inches.

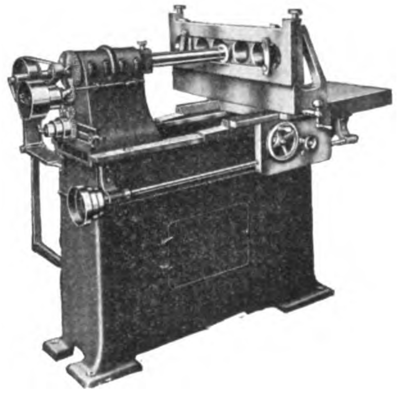
Manufactured by the B. L. Schmidt Co., Davenport, Ia.



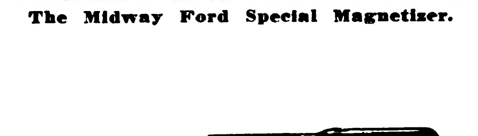
Continental Motor Stand.



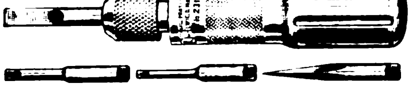
Yankee Vise.



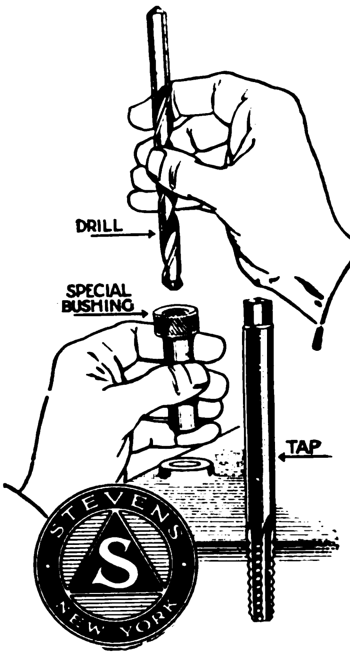
The Schmidt Cylinder Grinding Machine.



The Midway Ford Special Magnetizer.



Pocket Screw Driver.



Cylinder Tap and Drill Set.

The Stevens No. 100 Cylinder Tap and Drill Set is designed to minimize trouble in removing broken pieces of cylinder head screws and consists of a drill, a tap and a bushing, which fits the hole in the cylinder head. To use the set the bushing is put into place in the head and with this as a centre the broken part of the screw is drilled. The drill is of such a size that all of the screw body except the threads is removed and the balance is removed with the tap, leaving a tapped hole taking a screw same size as originally.

Manufactured by Stevens & Co., 375 Broadway, New York. Price, $1.

The Goodell-Pratt Pocket Screw Driver No. 231 is especially handy around the automobile for the reason that it is always handy in the pocket. The handle is made of steel, nickel plated, so that it will not rust. The chuck may be reversed and fitted into the handle in such a manner that the extreme length of the tool is but 3¼ inches.

Manufactured by the Goodell-Pratt Co., Greenfield, Mass. Price, 80 cents.

The Midway Ford Special Magnetizer is a portable instrument for remagnetizing the magnets of a Ford magneto without disassembling the car and removing the magnets from the flywheel, and is operated with current from storage batteries, dry cells or through a resistance bank direct. It consumes only a small amount of current and is very simple to operate. There is nothing to get out of order and the magneto or instrument cannot be injured by any mistake in using it. It is simple to remove the flywheel cover and hold the ends of the remagnetizer against the ends of the magnets and turn on the current until charged.

Manufactured by the Midway Mechanical Co., 1555 Selby Ave., St. Paul, Minn. Write for prices and literature.

The Yankee Vise, No. 1993, is designed for various uses. It consists of a cast iron body fitted with a sliding jaw, also of cast iron, which is carried back and forth by a ⅝-inch steel screw. Both jaws are fitted with steel faces and the sliding jaw extends through a slot one inch wide in the body of the vise. The device is mounted upon a swivel base and may be removed for use on a drill press, a shaper or with other machine tools. It may be used for various kinds of work on the automobile. The space between the jaws when fully open is 3⅛ inches.

Manufactured by North Bros. Manufacturing Co., Philadelphia, Pa. Write for prices and catalogue.

The Crane Wheel and Gear Puller safely removes flywheels, automobile wheels, gears, cams, sprockets, collars, couplings, commutators, propellors, etc.; bends pipe, straightens shafts and removes universal joints.

The screw has a flat end with inserted tempered tool steel point, that will not spread centers. It makes its own center on work that has none. The strain is taken on the flat end of the screw. The screws are made of high carbon steel and case hardened all over. These pullers are made in various sizes and types.

No. O Puller—Designed for all kinds of small work—including timing gears, magneto and pump shaft gears, etc., that are designed to be removed by stud bolts screwed into tapped holes in the web. The forked stud bolts attached to the hook end of the arm with pins, are furnished blank and can be drilled and tapped by the purchaser for the proper thread of his work, and case hardened headless set screws can be used for the stud. This puller takes light work five inches in diameter and three inches from the end of the shaft. It has the new patent locking arm, forked stud bolts and case hardened screw.

Made with two arms only, weight 2½ pounds each, $2.50. Both No. 2 and No. 3 puller are made in two and three-arm styles. Furnished with one set of combination hook and extension arms and one set of this jaw arms.

No. 2 Puller—Takes work nine inches in diameter. One set of arms reaches 5½ inches; two sets of arms reaches 11 inches. This size is particularly adapted for the average garage and repair shop. Two-arm type, weight, boxed, 16 pounds, each, $8. Three-arm style, weight, boxed, 19 pounds, each $10.50.

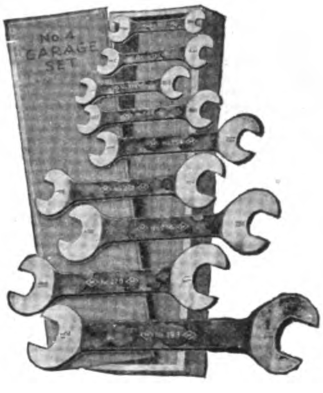
No. 3 Puller—Takes work 13 inches in diameter. One set arms reaches six inches; two set arms reaches 13 inches. This size will meet the requirements of work of all kinds. Two-arm style, weight, boxed, 28 pounds, each, $10. Three-arm style, weight, boxed, 39 pounds, each, $13.00.

Manufactured by the Crane Puller Co., Arlington, Mass. Write for literature.

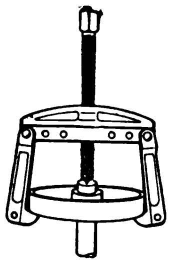
Stickit is a new wrench set that consists of a double end ratchet wrench, strapped to seven strong stamped steel sockets strung on a square steel shank. One end of the wrench fits the shank and the other end the sockets. The wrench also fits four sizes of nuts and with the socket 11 different sizes of nuts and cap screws. The ratchet wrench is fastened to the shank by a substantial leather strap and shield. This, together with the use of a leather washer on the shank, entirely prevents rattling. The other end of the shank has a ball stop and a spring ball for holding the socket in use in place. It is not necessary to remove all the sockets from the shank in order to use it, although it can be done in an instant.

Manufactured by the Bay State Pump Co., Boston, Mass. Price, $3.

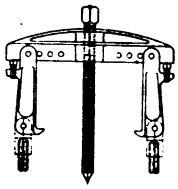
Mossberg No. 14 Socket Set.



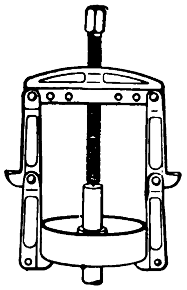
Mossberg No. 4 Garage Set.



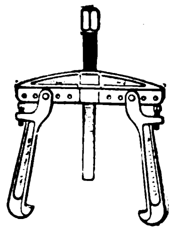
Two-Arm Puller removing work near end of shaft.



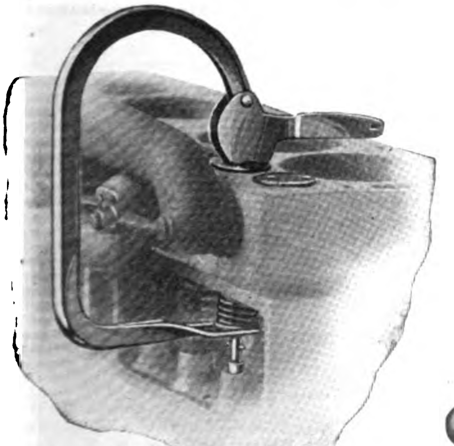
No. 0 Two-Arm Puller.



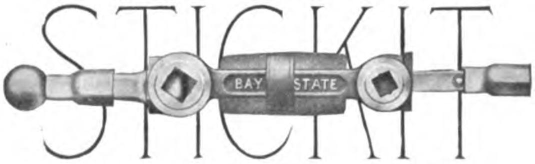
Work beyond reach of one set of arms.



Patent Locking Arm.



Beardsley Double Acting Valve Lifter.



The Sliding Extension Gap-Lathe is capable of handling a wide range of work. It is provided with six quickly changed gear feeds and an extra large spindle. All the gears are covered with safety guards. The bed of the lathe is well braced and accurately proportioned throughout. The top sliding bed and main bed are planed full length and fitted together with dove-tail construction. A screw and crank at one end draws the bed back when it is desired to widen the gap between the centers.

Manufactured by the Barnes Drill Co., 814-30 Chestnut St., Rockford, Ill. Write for prices and literature.

Mossberg Wrenches, in accordance with a constant desire on the part of the makers to manufacture the most adaptable line of all steel wrenches, are arranged in sets, and tools designed to meet the exact needs of the different lines of assembly and repair work are put out in a convenient form.

The assembling of sets to meet the various needs has required years of intensive study of assembly and repair work to insure a particular adaptability for each and every set. Mossberg designers have undertaken this and the enthusiasm shown for the various Mossberg sets acclaims the success of their work.

Such sets as the various small socket sets, Set No. 4 of open-end wrenches, the double-end sets have proven very popular sellers and are found to exactly meet the many needs of automobile and general repair work. The No. 4 set shown is particularly popular in the trade because of its wide range of sizes. The nine wrenches with their 18 openings fit all U. S. and S. A. E. sizes from ¼ inch to ¾ inch bolt or screw diameters.

General service set No. 1, set No. 3 for automobilists, and agricultural set No. 2 of open-end wrenches, all contain a range of sizes to fit the particular needs for which the set is arranged, and like Set No. 4 provides the most economical way of securing needed tools.

Mossberg Socket Sets, too, have been arranged in various sizes so that economical sets may be had that are particularly adapted to assembly needs.

Set No. 14 shown is the most complete set of sockets and tools for all repair needs.

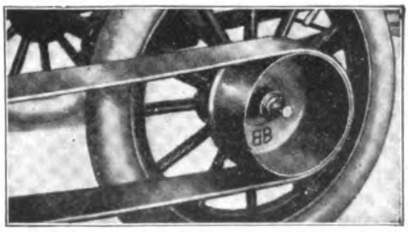
Manufactured by the Frank Mossberg Co., Attleboro, Mass. Write for prices and literature.

The Beardsley Double Acting Valve Lifter is a time saver, for it removes and replaces Ford valves in less than a minute and in other cars in half the time of other valve lifters. The foot of the device is simply shoved under the spring washer and the cam lever pushed down, which action holds the valve down and lifts the spring up, giving more room to remove and replace quicker than any other valve lifter.

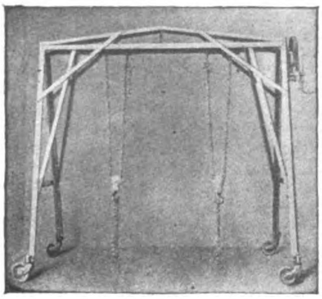
Manufactured by the Loomis-Beardsley Co., 71 East State St., Columbus, O. Write for prices and literature.

The Bayne "B B" Auto Power Pulley is an ordinary five-inch crown face belt pulley 10 inches in diameter, correctly designed, so that it can be attached to either rear wheel of an automobile by simply unscrewing and replacing the hub cap, and when so attached is a perfect belt power pulley for transmitting power to any belt driven machinery.

Manufactured by the Bayne Manufacturing Co., Bushnell, Ill. Price, $5.65.



Bayne "B B" Auto Power Pulley.



The Miller Auto Hoist.

The Portable Steel Garage Frame enables one man to do all kinds of work around the car. He can suspend the car unaided in two minutes time, make tire changes, adjustment, take out the motor or lift the body at a minimum expenditure of time and muscle. The crane is on roller bearing wheels and can be placed in any desired position. All the structural parts are of steel and it securely double locks.

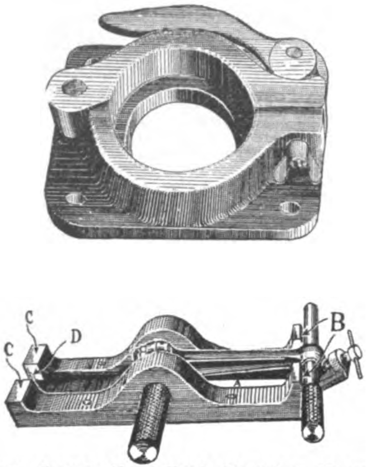
Manufactured by the Lafayette Engineering Co., Lafayette, Ind. Write for prices and literature.

The Storm Connecting Rod Bearing Reamer, Jog and Straightening Gauge is a new addition to the garage man's equipment. It is especially important and valuable because of the speed with which it does its work and because of the fact that it enables an inexperienced person to do connecting rod work just as accurately as though he had years of experience. The old method of fitting worn connecting rod bearings required considerable time because of the various operations of filing, trying, scraping and so forth: and then, even when done by experienced help could only be approximately accurate. But the results of this tool are rechanically accurate and the work is done in one-tenth the time taken by the old way. In fitting the bearings the faces of the bearing caps are filed away in the usual manner, care being taken to file away a little more than is necessary to take up the wear. The connecting rod is then placed in the jig, the reamer inserted and the bearing bolts drawn down tight; the reamer is next given one turn and it produces a perfectly round bearing, true and accurate. The tool also tests the rods for bend or twist. An engine should never be assembled without testing the rods in this way. The Ford connecting rod frequently becomes bent or twisted when held in the ordinary vise while tightening the wrist pin bolts and from other causes. To reassemble them in the engine without testing is to invite trouble. Only a moment's time is needed for testing and it is time well spent. The rod is tested for straightness over recess D and for twist and alignment over testing surface BB and CC.

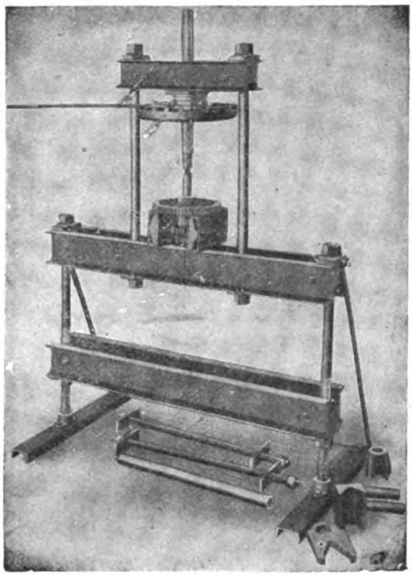
Manufactured by the Storm Manufacturing Co., Thompson, Ia. Write for prices and literature.

The Eclipse Valve Grinder is a practical and reliable electric driven machine, designed and built for the sole purpose of grinding valves to a perfect seat with the greatest possible dispatch and economy. The vertical handle with plunger switch affords perfect control, while the weight of the device (4½ pounds) is so proportioned as to secure the proper pressure for the best results; and the smooth gliding motion imparted by the ballistic movement produces a finish to both valves and seat that is free from grooves, scratches or other evidences of poor workmanship. With this machine few valves require as much as a four-minute treatment—many are finished in one minute.

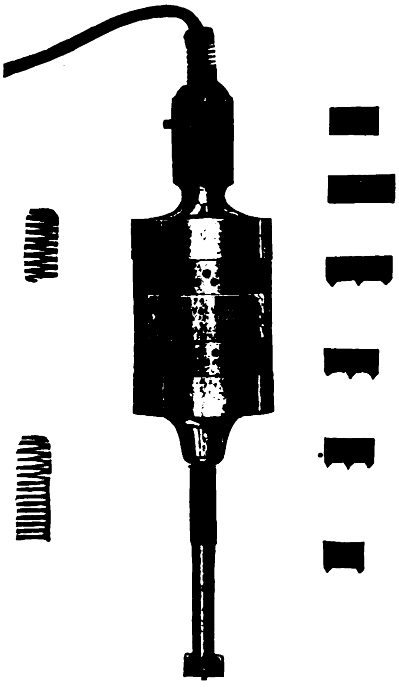
Manufactured by the Eclipse Valve Grinder Co., 415 Bonfils Building, Kansas City, Mo. Write for prices and literature.



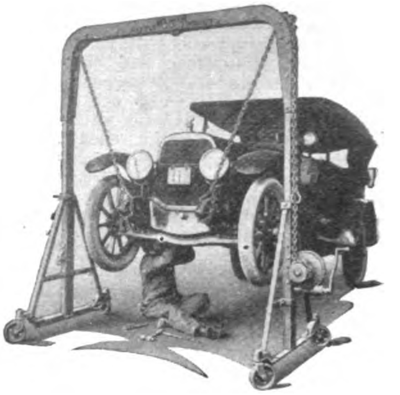
Storm Connecting Rod Bearing Reamer, Jog and Straightening Gauge.



The Manley 22-Ton Universal Auto Press.



The Eclipse Valve Grinder.



The Weaver Auto Hoist.

The Weaver Auto Hoist has a much greater range of application than the ordinary block and tackle. It can be run into position over a car in a crowded shop without requiring more than 12 to 14 inches space on either side of the car. The frame is so designed as to permit the height of the arch to be increased approximately 12 inches, allowing the uprights to be raised to the desired height in the braces on either side by means of the chain hoist. The increased height enables the hoist to raise the rear end of a limousine or a touring car with the top up, for removing the rear system. One chain of the hoist may be carried over the pulley in the center of the frame for performing work which can be handled to better advantage by a single suspension than by a double suspension from each corner of the frame, as shown in the illustration. The hoisting mechanism is operated by worm drive, which is absolutely safe and positive. There are no gears or ratchets to slip or break and allow the load to fall.

Manufactured by the Weaver Manufacturing Co., Springfield, Ill. Write for prices and literature.

The Manley 22-Ton Universal Auto Press has a high power leverage, starting at 2200-1 and automatically increasing at the end of stroke to 5000-1. This is obtained by the lever fitting into the socket on ratchet block. The paul uses the same notches in hand wheel and tremendous pressure is obtained on the screw with little effort. An important feature of this press is that the screw being exposed at the top may be struck a sharp blow in obstinate cases, such as a rusted shaft, which pressure alone will not move. With maximum pressure the jar of the blow does the rest. No damage to the press will result, as it is designed to withstand such a blow.

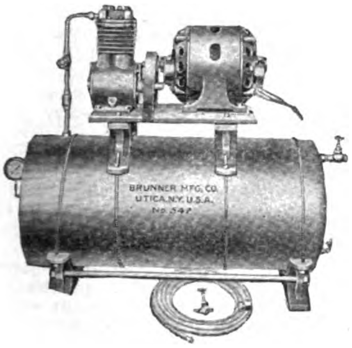
The low power press (1000-1) leverage is 10 times quicker than a ratchet.

Manufactured by the United Engine and Manufacturing Co. Price complete, $66. Write for literature.

The Miller Auto Hoist simplifies the lifting problems that arise in every shop where there are few employees. The frame of the hoist is seven feet high, eight feet wide and will support 6500 pounds. It is constructed of angle steel, rigidly braced and hot riveted and mounted on swivel castors.

The load is carried on frame from sleeves which slide to give desired spread by yoke and plate. The hoist is taken up by means of a handle acting through a series of gears. The lowering arrangement is controlled by a friction brake, which permits the load to be lowered as slowly as desired.

Manufactured by Portable Tool Sales Co., Endicott Bldg., Buffalo, N. Y. Prices upon application.



Brunner Air Compressor.

The Brunner Air Compressor.

The Standard No. 102 Brunner Air Compressor has a capacity of 2½ cubic feet of free air per minute. It is geared by means of a cloth pinion gear and a cast iron spur gear to a ⅛ horsepower motor, bolted to a substantial iron base, and is mounted on a 32 gallon welded open hearth flange steel tank tested to 300 pounds. Its height is 34 inches and occupies a floor space of 18 by 36 inches and can be attached to any lighting socket.

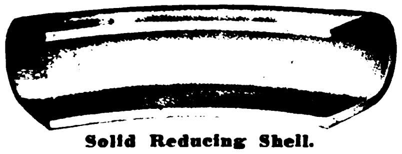
Manufactured by the Brunner Manufacturing Co., Utica, N. Y. Price with 110 or 220 volt direct current motor, $195. With one phase 60 cycle 110 or 220 volt A. C. motor (A. C. motors of other than 60 cycle at additional charge). Write for literature.

The Brunner Air Compressor is a portable outfit designed for inflating tires direct, without the aid of a tank or storage system. It is mounted on a substantial cast iron truck having three wheels, and is very durable and convenient to move about. The handle is strongly constructed of convenient height, and has substantial hooks for holding the electric cord and air hose when not in use. It is heavily built with standard No. 26 compressor, having accurately ground cylinders, pistons and piston rings. The motor is specially built, fully enclosed, affording ample power for operation under all conditions, and it may be operated from any light socket. All accessories are included to make the outfit complete and ready to operate when removed from shipping crate. A small chamber is supplied to precipitate the moisture from the air before entering the tire.

Manufactured by the Brunner Manufacturing Co., Utica, N. Y. Write for prices and literature.

The Williams Solid Reducing Shell enables the repair man to use larger sectional molds for vulcanizing repairs on small casings, whenever the small molds are busy.

By fitting a shell into a large mold the shells are machine finished to a minute degree of accuracy and are in perfect contact at all points, and as good a cure is secured as by direct contact of tire with mold.



Solid Reducing Shell.

These shells enable the repair man who has various sizes of molds to double the amount of vulcanizing on small size tires.

Manufactured by the Williams Foundry and Machine Co., Akron, O. Write for prices and literature.

CARE OF THE TIRE EQUIPMENT IS VERY ESSENTIAL.

Greater Economy and More Comfort Obtained from Use of Many Accessory Articles.

Tire equipment is one of the main expenses in maintaining a car. The condition of the tires on a used car, whether intended for resale or for the further use of its owner, is of very important consideration. Water and oil are the most injurious factors that cause the deterioration of tires, moisture rotting the fabric and rubber; therefore, tires should not be allowed to stand in water or on an oily floor for any length of time. Tires driven through water do not deteriorate to any extent.

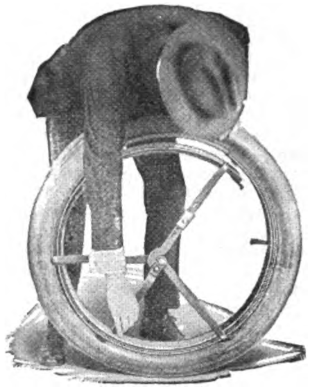
A tire is constructed of cotton fabric and rubber, the rubber being vulcanized in the fabric. This combination is known as the carcass, upon which is vulcanized the tread. In course of the use of the tire internal friction tends to destroy the rubber in the carcass and lay bare the cords or threads of the fabric and then the cotton fibers are open to destruction.

Periodically inspect each tire, repairing all holes or breaks in the rubber covering. To repair a small hole the rubber around it, as well as the cavity, should be cleaned thoroughly with gasoline and wiped dry. A coat of rubber cement is next given it, and, after it has been allowed to dry thoroughly, another coat is applied. The hole should then be filled with crude or sponge rubber, forced into place and held by a layer of tire tape until dry. After the cement has dried the friction tape should be removed and the surplus rubber trimmed off with a knife. Small cuts should be given the same treatment. When crude or sponge rubber is not available ordinary rubber bands may be used.

Where the tread is badly broken and the separation extends for more than an inch, the tire should be taken to a vulcanizer for repairs to prevent further deterioration. However, a temporary repair can be made by the owner, and if due care be exercised, it will frequently answer the purpose: The loose rubber covering should first be removed and the edges of the remaining tread trimmed smooth, the break given a thorough cleansing and the fabric roughed up with either sandpaper or a knife. Two or three coats of cement should then be applied and allowed to dry between each coat. Cut a piece of rubber from a discarded tire and fit into the break, after cleaning it thoroughly and applying two coats of cement. When the cement has thoroughly dried on both parts they should be cemented together and clamped in a vise or carpenter's clamps and left to set for at least 12 hours.

Care of Rims and Patching Tubes.

Once in a season all tires should be removed, the rims cleaned, all rust removed and the rims painted either with special iron paint or with a thin mix-



Lawco Rim Tool.

The Lawco Rim Tool removes a tire from any demountable transversely split rim in a minute or less. The tool is easy to adjust, easy to attach and will give quick results. As shown in the illustration this rim wrench is simply a set of claws that can be hooked over a rim and contracted by the simple motion of a lever. After the tire has been fixed it can be replaced while the rim is still in the grip of the tool. A toggle or reverse movement of the lever expands the tool and the rim as much as may be necessary to cause the ends to meet and permit latching. This tool may also be used to break open any rim latch. It is made of forged steel and is strong and simple in design.

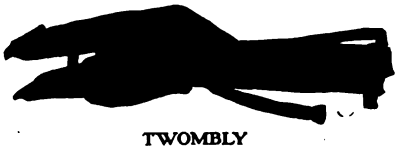
Manufactured by the F. H. Lawson Co., Cincinnati, O. Price, $3.50.

Adamson Model H Vulcanizing Outfit is a complete vulcanizing equipment for the garage or repair shop and is designed to accommodate three tubes at a time. The outfit consists of three model S vulcanizers mounted on a floor stand which is provided with a hood for a five-inch flue connection. This also includes three sets of vulcanizing cups, each consisting of a 3½, 6.9 and 12-inch size. The entire outfit comes complete with one-half pound of repair gum and the shipping weight is 160 pounds.

Manufactured by the Adamson Manufacturing Co., East Palestine, O. Price, $30.

The Twombly Tire Foot Pump inflates the tires easily and quickly. The ball of either foot is used and the lever is pressed straight down. The released spring returns the lever to its original position when it is ready for the next stroke. The toggle lever gives one a pressure up to 100 pounds with little effort. A full stroke can be obtained in a second if so wished. The pump is simple in construction, the few all-steel parts giving great wear resistance. When folded it is 17 by 3½ by 3 inches and will fit any standard sized tool box or can be carried under the seat cushion.

Manufactured by the Auto Pedal Pump Co., Cincinnati, O. Price, $5. Gauge, $1 extra.



TWOMBLY
Tire-FOOT-Pump

Treado is a prepared rubber for mending tires and rebuilding worn treads, fills small and large cuts, forming a durable rubber tread. It requires no experience to apply and dries in from 10 to 15 hours. It is also used for mending leaky rubbers, rubber boots, rubber soles and heels and will resole or repair leather and fiber soles. The cut to be repaired is first cleaned with gasoline and roughened with a knife and the Treado is spread into the opening with a knife, making a permanent repair.

Manufactured by the Treado Manufacturing Co., 42 Dwight St., Springfield, Mass. Prices for tires, 50 cents a can. Leather, 50 cents a can. Rubbers, 40 cents a can.

The Invincible Tire Pressure Tester is an ingenious device, which may be carried in the vest pocket like a watch or in a tin box, which is furnished, in the tool box. The crystal is made of so-called unbreakable composition, which is transparent. The dial is graduated to indicate from zero to 120 pounds pressure. In addition to the pounds pressure marking, a second series of numbers indicates the pressures required for different sized tires.

Manufactured by United States Gauge Co., New York, N. Y. Price, $1.50.

The Black & Decker Tire Inflater Outfit consists of a tank mounted upon an iron base and fitted with compressor, pressure gauge and automatic switch. Immediately upon making the electrical connection the motor is started and air is pumped into the tank until a pressure of 150 pounds per square inch has been reached, then the automatic pressure switch comes into action and stops the machine. To inflate a tire the Romort air chuck on the end of the hose is pressed over the tire valve and the pressure in the tire will rise instantly, it is claimed to any number of pounds desired. When enough air has been used to cause the pressure in the tank to drop to 1[illegible] pounds, the automatic switch starts the motor and brings the pressure back to 150 pounds. After the first electrical connection has been made the machine requires no further attention, since its operation is entirely automatic. A cover is furnished for the automatic switch, which completely encloses all mechanical and electrical parts. These machines can be used on 110 volt circuits, direct or alternating current of from 25 to 60 cycles. The Northern Electric Co., Ltd., are exclusive Canadian distributors for the complete line.

Manufactured by the Black & Decker Manufacturing Co., 304 Water St., Baltimore, Md. Write for prices and catalogue of complete line.

ture of orange shellac and lamp black. A periodical examination should be made of the inside of tires and all moisture dried out. Be careful to not use too much soapstone, or its good effect will be defeated. Use just enough of this powder to form a smooth coating over the shoe fabric to reduce internal friction.

For small holes in tubes an outside patch answers the purpose, but where the hole is half an inch or more in diameter an inside patch should be applied. Trim the edges of the hole smooth and clean and buff back from the edges inside the tube for a quarter inch all around the hole. Place a prepared patch made of a layer of cured rubber and a layer of uncured rubber inside the tube and over the hole, covering the hole and about three-quarters of an inch larger all around. Moisten the patch and press it against the side of the tube by placing the tube on a flat table. The hole itself should then be filled in with raw rubber just the size of the cavity and a small vulcanizer applied. To prevent the tube from sticking to the vulcanizer a piece of holland or muslin should be placed over the break.

Uncured rubber or repair gum may be vulcanized into place and forms a repair that is usually permanent. Holes in tubes as large as an inch in diameter may be repaired with a small vulcanizing outfit. Much tire and tube repair work can be done with the small hand vulcanizers now on the market, and the car owner is advised to purchase such a device, since the saving it will enable the owner to make will soon pay for its cost.

Cautions Against Misuse of Tires.

Do not over-inflate or under-inflate. Either condition will disintegrate the cords or threads of the fabric and cause premature deterioration. Follow the manufacturer's instructions on amount of air pressure, a precaution which can be followed by obtaining one of the various air gauges on the market.

Do not allow tires to rest in oil or water while in the garage.

The Goodyear New Cord Patch is one of the simplest as well as the most satisfactory means of repairing cord tires, in case of inside breaks of all kinds and injuries received from stone bruises. It can be used to reinforce, permanently, any weak spot in a tire resulting from any kind of injury.

It is built of several layers of cords—the same as are used in the construction of cord tires. Its construction is similar to that of the tire itself, with a heavy friction of gum between each layer of cords. The edges are tapered to prevent tube chafing. Its application to the inside of the tire is similar to that of a regular patch. It is made to fit all sizes of cord tires. No. 1 is for use in 3, 3½ and 4-inch tires; No. 2 in 4½ and 5-inch tires, and No. 3 in 6, 7 and 8-inch tires.

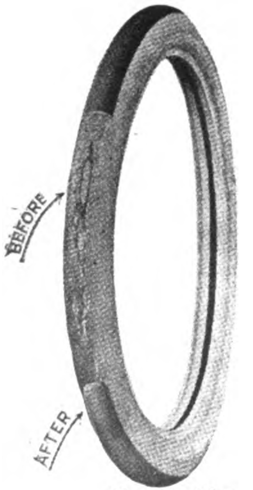
Manufactured by the Goodyear Tire and Rubber Co., Akron, O. Obtainable at all service stations.

The Lewsen Quick Rim Spreader is a time saver for everyone that works around an automobile. The ends of the three arms are slipped into the holes in the hub of the rim and adjusted with check nut against them. It can be adjusted to any size rim. The end pieces are screwed on to the other end of the arm against the nut. The tire is then placed in such a position that the turn buckle end will be near the lock of the rim, which will press or pull it into position immediately. The turn buckle is drop forged of the best steel, and the other two arms are made of cold rolled steel and end pieces of best steel obtainable. It can be knocked down in small parts and takes but very little room in the tool box. For garage work the end pieces can be riveted on so that it will not fall apart when handled.

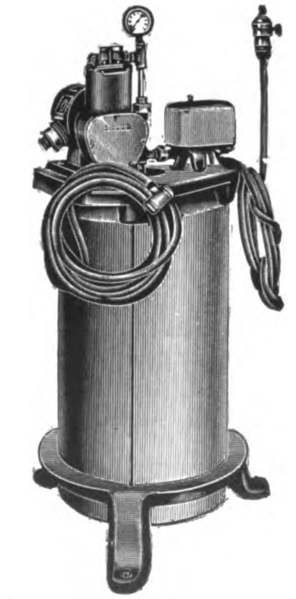
Manufactured by the Lewsen Manufacturing Co., Portland, Me. Price, $7.50.

The Black & Decker Tank and Pump is a portable air tank and pump. The outfit consists of an air tank, fitted with a No. 2 lectroflater air pump, mounted on a cradle base that is supported by two large wheels and a swivel castor. A pushing handle is attached to the platform and the outfit is easy to handle and steer. The wheels are fitted with rubber tires for use over hardwood floors or tile. When the tank is empty it is easily pushed to the nearest electrical connection and it refills itself, an automatic switch cutting out the current when the proper pressure is obtained.

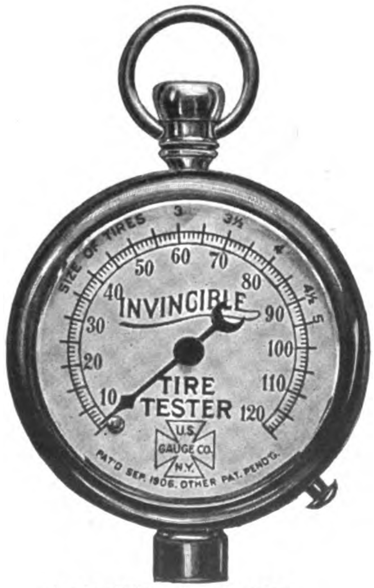
Manufactured by Black & Decker, Baltimore, Md. Write for prices and literature.



Treado Tire



Inflater Outfit.



Invincible Tire Tester.

Black & Decker Tank and Pump.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

The Shaler Tube Vulcanizer repairs four tubes at one time and vulcanizes perfectly any size or shape of puncture or cut up to two feet in length. It is easy to operate and requires no watching or regulating, for it has automatic heat control. It takes up very little room and can be placed on a work bench or moved about at will. Furnished with either a gas or gasoline burner or both.

Manufactured by the C. A. Shaler Co., 252 Fourth St., Waupun, Wis. Type "L-40," $35.

The Tube Deflator is a handy little device for use in repair shops and garages where much tire repairing or storing is done. To deflate a tube by the old hand method takes both time and patience. With the device illustrated, however, the tube is slipped over one of the projections on the plate, then, by turning the handle, the tube is wound tightly around the two projections and the air is quickly exhausted. Practically any size tube may be deflated with the device, which may be placed on the bench or wall in any convenient position.

Manufactured by the Williams Foundry and Machine Co., Akron, O. Write for price.

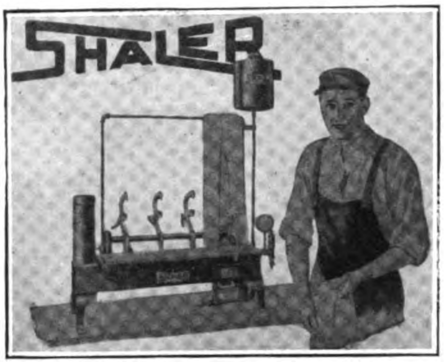
The Adamson Model E Vulcanizing Set includes vulcanizer, can of Adamson dry fuel, a box of 12 patches, measuring cup, sand paper and directions.

While serving its purpose as well as any of the large outfits for vulcanizing, it is much handier and efficient, as it can be packed away in the car among the tools or in any small space and is ready for use at an instant's notice. With such a device in the tool kit the motorist can cease worrying about possible punctures.

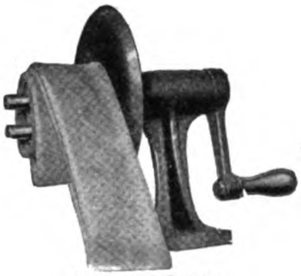
Adamson Manufacturing Co., East Palestine, O. Price, $1; extra box of patches, 25 cents; extra can of dry fuel, 50 cents.

The Mosco Tire Rim Tool shown in the illustration is a handy accessory for the car operator using a machine equipped with split rims. This tool is designed to be hooked over the rim. When so applied and the turnbuckle turned the rim is opened, making the replacement of a tire an easy matter. This tool may also be used for expanding the rim after the tire is applied by reversing the process, the untwisting of the turn buckle exerting sufficient pressure upon the rim to expand it.

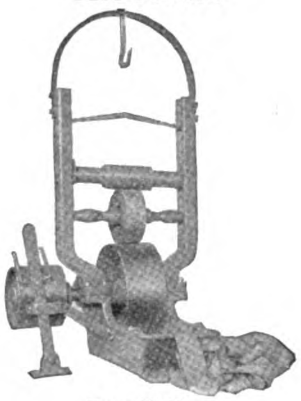
Manufactured by the Mosco Specialties Co., Waltham, Mass. Price, $2.50.



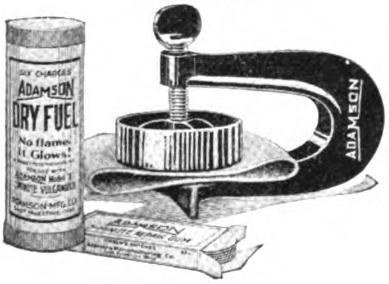
Shaler Tube Vulcanizer.



Tube Deflator.



Rag Roller.



Adamson Vulcanizer.

The Akron-Williams Rag Roller meets a demand from tire factories and large repair shops. It affords greater accuracy and speed in unwinding the wrappings around inner tubes after curing. The mandrel and tube are placed before the rag roller, with loose end of rag in contact with roller, then the power is applied and the rag quickly rolled off the mandrel and on to roller. The rag may be removed with ease after lifting the small rod up to hook at the top. This new roller takes up very little space and may be installed on a bench or any other convenient place near the machine for wrapping tubes. The price is much less than the old style rag rollers and it is being adapted by many shops.

Manufactured by the Williams Foundry and Machine Co., Akron, O. Write for prices and literature.

The Akron-Williams Tire Rebuilding Stand is designed for the tire repair shop, used on retread jobs and major sectional repairs. It is similar to stands used for hand operations in tire factories. Unlike the latter, however, it takes up a minimum of floor space and is much lighter in weight without sacrificing convenience or strength. A new feature is the spring ratchet attachment, which permits the tire being turned either way at will, or being locked rigidly in any desired position.

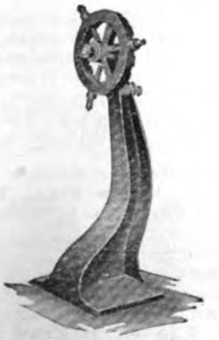
Manufactured by the Williams Foundry and Machine Co., Akron, O. Price $30.

The Schrader Automatic Inflating Valve makes the bottled air lock itself into the tank. When filling the tire the valve is pressed against the valve stem and when the desired pressure is obtained the removal of the valve automatically cuts off all air leakage from the tank. It is made to fit any diameter of hose from ¼ inch to ⅝ inch.

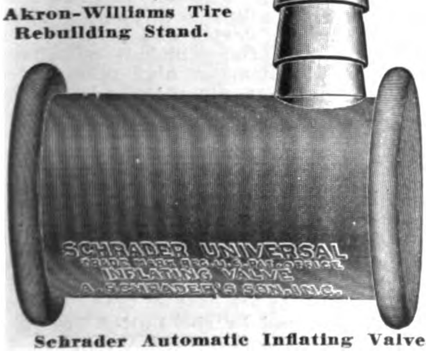
Manufactured by A. Schrader's Son, Inc., 800 Atlantic Ave., Brooklyn, N. Y. Write for prices and literature.

The Weaver Universal Tire Changer is designed for the rapid changing or mounting of tires. It reduces to a minimum the time for changing quick detachable rim tires, split rim mountings or clincher tires. The changing operation is entirely mechanical and the device is so arranged that little effort is required. The manufacturers claim that there is no damage to tire hazard present since all the pressure is brought upon the tire by means of roller contact.

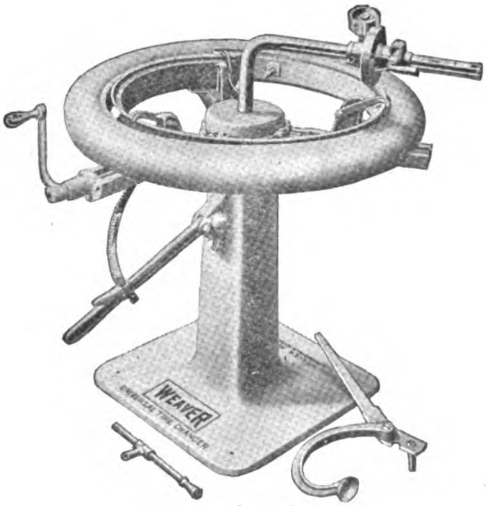
Manufactured by Weaver Manufacturing Co., Springfield, Ill. Write for literature and prices.



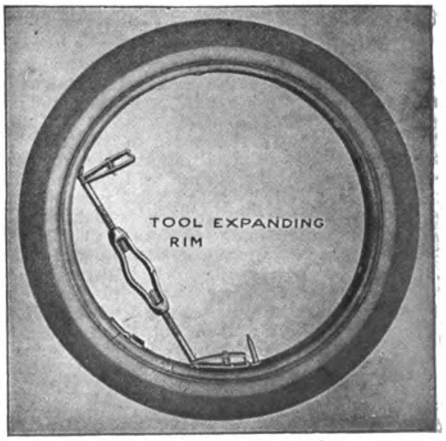
Akron-Williams Tire Rebuilding Stand.



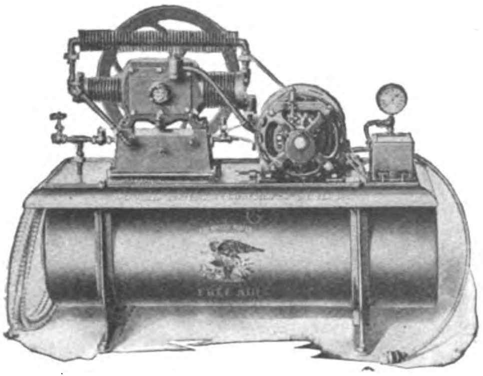
Schrader Automatic Inflating Valve.



Weaver Tire Changer.



Mosco Tire Rim Tool.



The G. L. T. Push and Pull Rim Tool is unlike all others in manner of operation and construction. The makers claim no pinching of the fingers or torn clothing, breaking tools or hammering rims out of shape in an effort to remove or replace rims from or to tires. The sliding or adjusting bar that must move to and fro travels in an E shaped heavily ribbed channel. There are no loose hooks, all parts firm and rugged. The slot in the connecting link allows adjusting bar to move backwards, allowing tool inside for unlocking rim, pushing joint apart and pushing rim and joint to place, also allowing bar to move forward for attaching hooks to outside of rim for pulling or contracting rim for removal of tire. It requires but a few seconds for the entire operation and the tool is very substantial, of all steel construction, durable, simple and easy to operate.

Manufactured by the Metal Products Manufacturing Co., 2416 University Ave., S. E., Minneapolis, Minn. No. 1 plain, for 30 inches, $3.50; japaned, 30 inches, $3.75; anti-rust, 31 inches, $3.85; white nickel, 32 inches, $3.95; bronze, 33 inches, $3.95; bronze, 34 inches, $4.25; oxidized copper 35 inches, $4.50; polish nickel, 36 inches, $4.75.

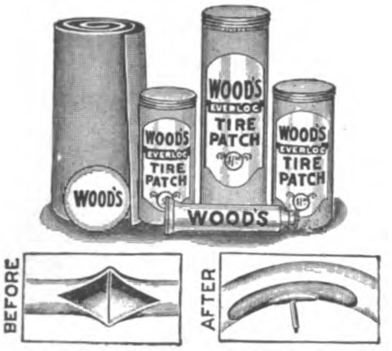
The A. & H. Valve Tool is an implement for truing up both internal and external valve and cap threads of nipples of pneumatic tires. It may also be used for cutting threads, making it a valuable addition to the tool kit.

With the True Threader Tool one can recut inside plunger threads, recut outside nipple threads and take out plungers.

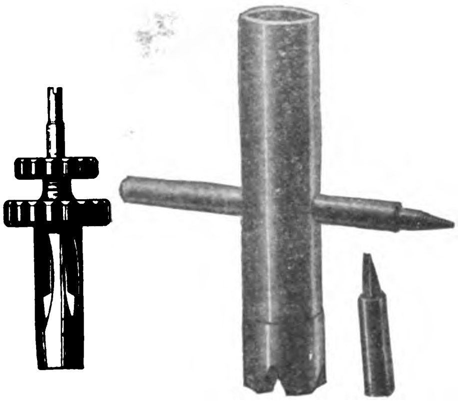
Manufactured by the A. & H. Manufacturing Co., Inc., 505-507 West 45th St., New York City. The combination tools, $2, or $1.50 each.

The Weaver Tire Spreader is a device for inspecting the interior of casings, which operation is always necessary in repairing every puncture, blow out or other damage to either tube of casing. By means of a quick acting foot lever the casing is spread to its limit, thus exposing the interior for convenient and efficient inspection. It will be noted from the illustration that the convex plate which forms the table of the tire spreader is equipped with hooks, which after the casing is spread by means of the jaws, can be applied to the bead at each corner of the plate, thus holding the tire permanently spread and with a solid backing. The casing with the plate of the tire can then be lifted off of the spreader and carried to the buffing wheel and the break in the casing buffed to the best possible advantage. A nest of rollers, which are designed to protrude through the buffing plate, carry the weight of the tire when it is being revolved on the spreader for inspection. These rollers, however, are suspended on spring tension, which allows them to be pressed down flush with the face of the spreader plate as the force of the jaws is applied to the beads of the casing for spreading. The shipping weight is 60 pounds.

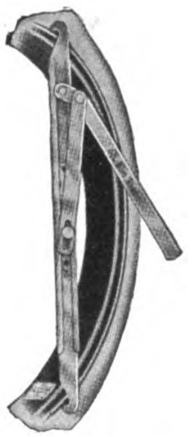
Manufactured by the Weaver Manufacturing Co., Springfield, Ill. Write for prices and literature.



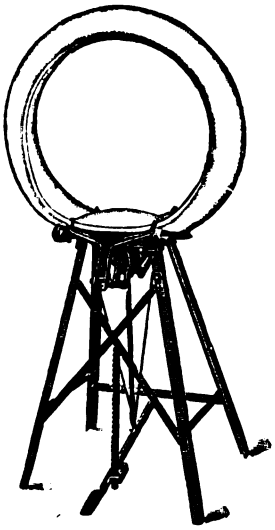
Wood's "Everloc."

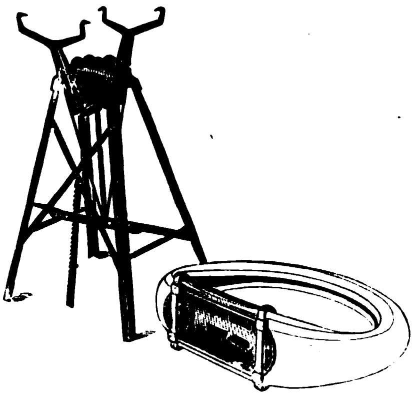


The A. & H. Valve Tool.



G. L. T. Push and Pull Rim Tool.





The Weaver Tire Spreader.

HOOSIER PATCH
"Hoosier Patch"
WITH THE "BULL DOG GRIP"
A Self Vulcanizing Cold Patch

Hoosier Patch Outfit.

Wood's "Everloc" makes a permanent repair on the smallest puncture or largest blow out on tubes without vulcanizing. The patch comes rolled in container, with tube of cement complete, and the makers claim a permanent job on any puncture from a nail hole to a cut or blow out 17 inches in length, which can be applied in five minutes.

Manufactured by W. C. Wood Co., 74 Western Ave., Minneapolis, Minn. The $1.50 patch is made in sheets 6½x18½ inches, $1 patch 4 1/16x18 inches, 50 cent patch 2x16½ inches, and can be cut to any size desired. Large sheets will repair 100 one inch cuts or 250 nail punctures.

The Perfect Valve Wrench slides over the valve of the inner tube and takes hold of the nut, and the weight of the other end of the wrench holds it down so that the nut can be turned as fast as possible without the delay of repeatedly replacing the wrench over the nut. It takes but a few seconds to remove the nut, no matter how badly the valve is rusted and the wrench will last a lifetime.

Manufactured by the Lewsen Manufacturing Co., Portland, Me. Price, $1.

The Hoosier Patch Outfit is designed for quick repair work without the use of heat or gasoline, and the manufacturers claim that a repair made with this patch is practically permanent. They claim that the vulcanizing operation is accomplished by the heat arising from the friction of the tire when in use. With the outfit illustrated is included one patch, together with sandpaper and patch solution in a self-sealing tube.

Manufactured by Hoosier Rubber Manufacturing Co., Inc., Starks Bldg., Louisville, Ky. Price of outfit No. 1, $1.75; outfit No. 2, $1.

The De Luxe H 34 U. S. two-stage automatic air compressor has many exclusive features that make it an efficient and complete air plant. The air is drawn into a large area cylinder through a special intake silencer device and is compressed to 40 pounds, after which it is delivered to a smaller diameter high pressure cylinder through an air cooled pipe leading from the head of the smaller. The air is forced by a smaller piston through a special check valve to a filtering trap, where foreign matter and oil is removed, and thence through an automatic adjustable safety valve to the storage tank. Pressure control is by automatic valve, which stops the engine when a predetermined pressure is reached falls below a given mark. The cylinders and crank case of the compressor are cast en bloc.

Manufactured by the United States Air Compressor Co., Cleveland, O. Prices furnished on application.

The American Bureau of Engineering has just put a product on the market called the Peers Ambu Battery Steamer, an apparatus for softening the sealing compound on starting and lighting batteries.

The device consists of three parts: A steam generator, a steam box and a water supply tank. When a battery is to be opened the connectors are first removed and the battery then placed in the steaming box and steam passed into the box for about 15 minutes. This makes the sealing compound soft, so that it can be removed readily with the point of a screw driver, or putty knife, the entire operation of opening the battery being performed within five minutes after it is removed from the steaming box.

The generator or boiler is made of heavy galvanized iron, the water in this unit being automatically kept to a low level so that steam is generated very quickly.

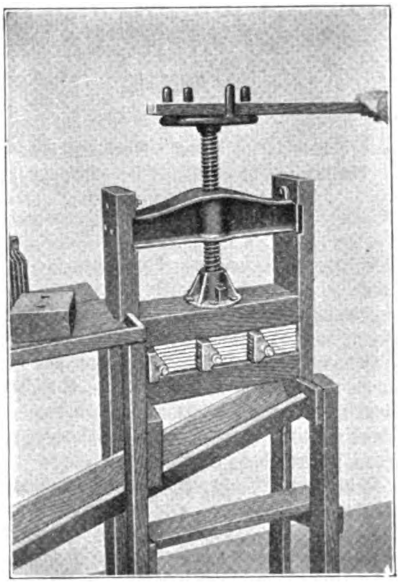
Manufactured by American Bureau of Engineering, 1018 Wabash Avenue, Chicago, Ill. Write for prices.

The Willard Threaded Rubber Insulation is one of the most important of many marked improvements which the Willard organization has made in the automobile starting and lighting battery. The illustration, which is greatly enlarged, shows a section of the threaded rubber insulation used between the plates of the battery. Each white spot is the end of one of the 196,000 threads which pierce the rubber plate or sheet from front to back. Each one is in reality only 1/32 of an inch in length and of such small diameter that it is not noticeable to the naked eye. The plates are perfectly protected and the solution has free passage by capillary attraction and because of the enormous number of threads the full power of the battery is always available.

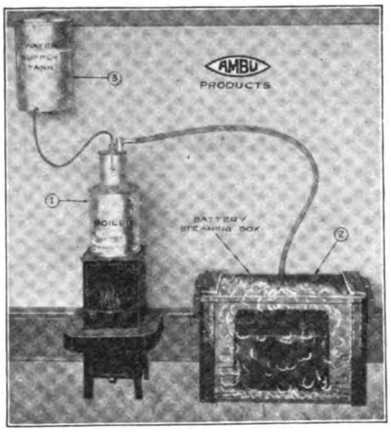
Manufactured by the Willard Storage Battery Co., Cleveland, O. Write for prices and booklet entitled "The Story of 196,000 Little Threads."

The Ford Car Storage Battery because of its low construction may be placed under the seat instead of in a steel box on the running board. The makers claim a number of advantages from this installation. They say that with the battery beneath the seat a more even disposal of weight is possible, the unsightly running board box is removed and the unbalancing and great wear on the car is eliminated. These batteries are built in the 70-90 or 110 ampere-hour capacity.

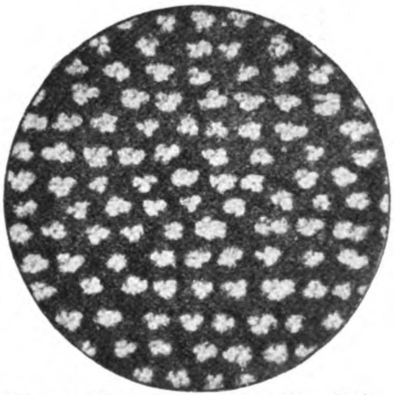
Manufactured by Michigan Storage Battery Co., 67-69 Atwater St., East Detroit, Mich. Write for prices and literature.



Ambu Press for Straightening and Compressing Battery Plates.



Ambu Battery Steamer.



Willard Threaded Rubber Insulation.

The Ambu Plate Press is for use in pressing the negative plates of storage batteries to reduce the bulging of the active material and to straighten the grids should they buckle. It has no metallic sections that can be reached by the dripping acid and whatever acid is squeezed from the plates runs through a trough into a receptacle so that no injury is done to the floors. It will press three groups of plates at the same time.

Manufactured by the American Bureau of Engineering, Chicago, Ill. Price $32.50.

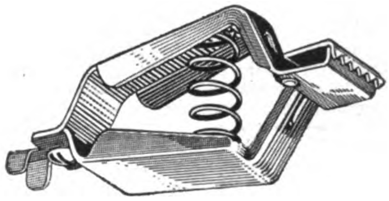
TheWorkRite Combination Outfit consists of a high-grade hydrometer fitted in a glass jar for holding distilled water or pure rain water. It can readily be seen that this outfit would be very handy for use around either a public or private garage, for filling and testing storage batteries. As the hydrometer is always kept in water there is no chance for it to become dusty or broken.

The Work-Rite hydrometer is fitted with rubber collars at each end, which prevent the glass from striking and breaking if accidentally dropped. The large collar at top acts as a cover for the water jar, and the square collar at bottom prevents the instrument from rolling if placed on an uneven surface. The label on bottle contains numerous blank spaces for filling in the date when last tested or filled. It also contains complete instructions for the care of the battery in both winter and summer.

Manufactured by the WorkRite Manufacturing Co., Cleveland, O. Prices for the combination outfit is $1.50, and for the hydrometer only $1.

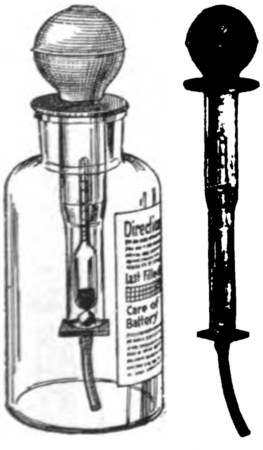
The "Break-Not" Storage Battery Tester shows at a glance whether the battery is empty—half discharged—or fully charged. More than half of the instrument is made of red rubber, which eliminates breakage to a great extent. The instrument is guaranteed accurate and the scale is clearly and plainly marked.

Manufactured by E. Edelmann & Co., 119 W. 42nd St., New York City, N. Y. Price, complete in mailing tube, $1.

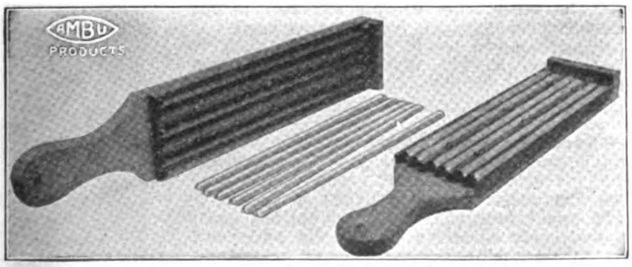


The Universal Battery Charging Clips are for use as a quick and ready means of connecting storage batteries for charging. They enable one to charge lighting and starter batteries without disconnecting them from the car. Being made with spring jaws fitted with sharp teeth, they bite through dirt and corrosion on terminals and make contact with the metal certain. The trouble caused by loose connections is eliminated with this form of contact.

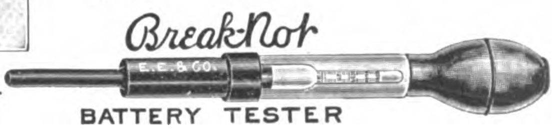
Manufactured by R. S. Mueller & Co., 424 High Ave., Cleveland, O. Write for prices.

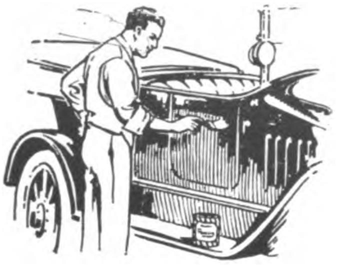


WorkRite Combination Outfit.



Ambu Burning Lead Mold for Moulding Scrap and Other Lead Into Molds for Making Burning Lead.





Panvar Car Refinisher.

The Panvar Car Refinisher is a lasting liquid luster that can be handled with excellent results by the amateur. It dries over night and is quickly applied, is self-leveling (which means that it will dry out evenly and not show brush marks), dries with a hard, glossy finish, and being transparent can be used on any colored car, seats, tops and plated parts. Luster will last as long as varnish, and the makers claim will not crack, creep, peel or turn white from the effects of water or steam. Sells for $1.50 a quart. A quart will do a car.

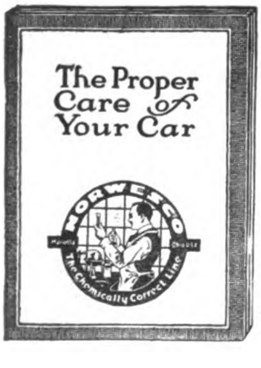
The Panvar Co., 708 Bulletin Bldg., Philadelphia, Pa. Write for trade prices.

Pontoklene is a product of the well known Du Pont Chemical Works and is used for removing grease, oil or tar from the motor car, while at the same time restoring the original polish of the car without rubbing. It is also used for cleaning engines and is superior to gasoline for that purpose. In cleaning the automobile Pontoklene will save much time and labor, particularly where many cars are handled, as it will remove tar as readily as water washes away dust without injuring the finish of the body.

Distributed by E. I. Du Pont De Nemours & Co., Wilmington, Del. Prices: ¼ gallon, $1; ½ gallon, $1.50.

Spok Tite is a liquid preparation which tightens loose spokes and stops body squeaks. It is said to be uninjurious to painted or varnished surfaces and when applied causes the wood to swell and resume its normal proportions. The can is furnished with a handy spout and upon signs of looseness in the wheels a few drops of Spok Tite are squirted into the crevices formed by the drying up of the wood. The wheels may be left in place for the treatment and the action of the liquid is rapid.

Represented by Charlie Foster, 243 Columbus Ave., Boston, Mass. Write for prices. Distributed by Asch & Co., 16-24 W. 61st St., New York City, and Gray, Heath Co., 1440 Michigan Blvd., Chicago.



SPOK TITE
TIGHTENS LOOSE WHEELS
THE WOODTITE LABORATORY

Spok Tite.

APPEARANCE HAS MUCH TO DO WITH THE VALUE.

Numerous Finishes, Restoratives and Polishes That Can Be Effectively Used by Amateur.

While the value of a car is in fact largely confined to its service value as represented in its mechanical condition, the value of appearance cannot be underestimated as upon this factor its selling price will largely depend, as the impression created by what a person sees is always more lasting than that derived from what they hear.

Whether or not, however, a person intends to dress his car up to sell or for his own satisfaction, makes little difference, as if he wants it refinished as new he will be obliged to take it to a professional coach or automobile painter, but the expense of such a job usually makes it prohibitive except in the case where the car is of the high priced type, and the expenditure of a hundred dollars or more represents but a small proportion of its value.

On the medium or low priced car it does not pay to make this outlay, particularly when a very good refinishing job can be accomplished by the average person with one of the many finishes on the market, sold to meet a demand of this nature. The luster and finish on a car as a rule does not dull or come off to the same extent all over the body, a fact which often makes it possible to touch the car up here and there with a restorative or finish and have a job that while possibly not as snappy as when the car came out of the paint shop, has improved its appearance wonderfully.

At the end of the first year of service the majority of cars need only a surface finish or polish to restore their lost luster and life, and for this work there are several articles on the market which are serviceable and of lasting quality.

The Simple System Automobile Painting, the makers claim, is identical in its qualifications with what a first class automobile painter would use, but the paint is put up in a ready mixed form, so simple that any amateur can get satisfactory results. The F. O. Pierce Co. for 50 years has been catering to the wants of painters who paint coaches, cars and automobiles. The consumer gets the benefit of their vast experience in manufacturing the right products for automobile painting; therefore, the "Simple System" is not guess work.

Manufactured by F. O. Pierce Co., New York City, N. Y. Write for prices and booklets.

Victrolene is a scientifically compounded cleaner and polisher for automobiles. The manufacturers claim that it is unlike any other polish in that it leaves a hard dry luster that will not collect dust. It positively removes tar, tarvia and road oil. Satisfaction is guaranteed or money is refunded. It will clean leather and keep it soft and pliable.

Manufactured by Victrolene Co., 39 Pearl St., Boston, Mass. Prices from 25 cents for half pint can to $3 for one gallon can.

UTILITY BLACK
NORWESCO
AIR DRYING ENAMEL

"Norwesco Utility Black" meets the big need for an all around utility enamel which the motorist can use for retouching all shabby metal parts of an automobile and that will be satisfactory for painting the engine. It is air drying and possesses heat baking qualities. After several months of testing and experimenting the Norwesco Laboratories have now added to their line of chemical specialties "Norwesco Utility Black." A black enamel designed for retouching all metal parts of an automobile such as the lamps, hood, radiator and fenders.

Manufactured by the Northwestern Chemical Co., Marietta, O. Pints and half pints retail for $1 and 60 cents respectively.

Murphy Da-Cote Motor Car Enamels are manufactured specially to meet the demand from car owners for finishes which they can apply themselves. It flows smoothly without leaving brush marks and dries over night. The surface when dry is hard, glossy, durable and elastic. It is furnished in practically all the popular colors and shades and can be obtained from dealers in all the large cities.

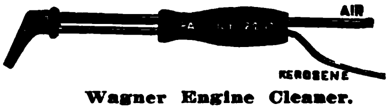
Manufactured by the Murphy Varnish Co., Newark, N. J. Write for literature and prices.

The Wagner Engine Cleaner, which is operated by six pounds air pressure, enables one to clean places that cannot be reached in any other way and through its use one quart of kerosene will clean any size motor. The passage of the air through the cleaner head carries the kerosene with it in the form of a spray.

Manufactured by Wagner Specialty Co., 1902 Broadway, New York City. Price upon application.

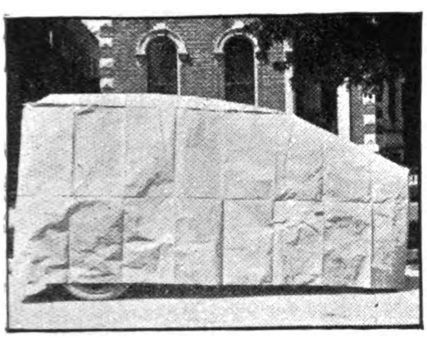
"Proper Care of Your Car" is a booklet quite in line with the nation's plan of conserving and preserving. This booklet is chock full of practical hints for the motorist. It tells how to overcome and to correct some of the different ills a motor car is subject to. Unlike some booklets it gives more than one remedy for correcting the most common troubles. In fact, it tells just what its name implies.

Distributed by the Northwestern Chemical Co., Marietta, O. The readers of the Automobile Journal can secure a copy by writing.



Wagner Engine Cleaner.

Victrolene.



Kennedy Auto Cover.

The Kennedy Auto Covers are a live proposition for dealers. The season is almost at hand when car owners will store their automobiles and these cars should be protected. This company has designed covers for practically every purpose of storage. The cover protects the car from dust, dirt, cold and moisture. The makers claim that there is nothing better to put over a car for storage and the advantages of this cover are easily realized, for it also protects the tires by excluding the light and thereby preserving the rubber. The covers are made in different sizes for five and seven-passenger cars, also electrics. They are made of heavy, durable paper, that is securely reinforced to prevent tearing and which completely covers the car. There is also a cover of lighter weight paper and without the reinforcements, which gives good service when the cover is not to be used more than once. Five-passenger covers will cover the popular priced touring car and roadster with wheelbase up to 115 inches. For larger cars the seven-passenger size is preferable. Ford covers are for cars with short wheelbase. Shipped in lots of six or more.

Made by the Kennedy Car-Liner and Bag Co., Shelbyville, Ind. Write for prices and literature.

The Stow Electric Buffer was originally designed for buffing the bright surfaces of automobiles, but has many uses around the garage or machine shop. The outfit consists of an electric motor, which may be had to operate upon any voltage or cycle, direct or alternating current, direct from a lamp socket; a flexible shaft, clamp spindle and connections, also one 3x1-inch buff and one 4x1-inch buff. In addition to its usefulness as a buffing device for shining brass and metal work, it may be used with small grinding wheels as well. The small size machine takes wheels up to and including 2½x4¼ inches, while still heavier machines take wheels up to and including 4x4¾ inches.

Manufactured by Stow Manufacturing Co., Birmingham, N. Y.

Stow Electric Buffer.

KEEPING THE TOP AND UPHOLSTERY SPICK AND SPAN.

Dressings, Cleansers and Finishes May Be Obtained to Make the Car Look as New.

Frequently dust and brush off the top. While car is standing in garage have top up, in order to keep wrinkles stretched out.

When the top becomes shabby a coat of top dressing will renew its appearance.

Do not use gasoline in cleaning leather upholstery. There are special cleansers and renewers of the finish of leathers manufactured for that purpose.

In cleaning cloth upholstery do not use an acid solution. Cloth is not affected by climatic conditions and will withstand both heat and cold, and not having oil in its makeup does not pick up or hold the dust readily. In removing dust, beat cushions and backs with a stick or carpet beater; then remove dust with whisk broom or brush. Grease or oil can be removed from cloth upholstery by the application of a solution of luke warm water and ivory soap. Gasoline has the tendency to spread instead of remove the dirt.

Where upholstery is badly torn new imitation leather may be used for covering and the amateur repair man may be able to do a satisfactory job by using the French plaiting method. The old covering had better be left on the seat or back and the new covering applied directly over it; the old will add strength and hold the springs and filling in place while the new is being applied. If the old covering is fitted by plaiting the work is simple: Starting at the right side of the seat, stretch the leather tightly and tack it down along the sides, stretching it smoothly over the seat. Place the jacks about one inch apart down the side and for five inches along both the back and front of the seat, then fold the free leather back for one inch, and after drawing it tight tack it down, working forward for five inches more, until the whole seat is covered, the distance between the folds being four inches. As the work progresses the tacks should be removed from the old leather so that in the finished seat, except for the sides, the old leather will be held by the new tacks only. If the old leather has been upholstered by the button method the button spaces should be filled with hair before the new covering is put into place.

Seat covers are desirable for covering torn and shabby upholstery and they give a dressy appearance to the car.

Harvey Springs have been so well proven by actual experience that there is absolutely no question in the minds of garagemen and car owners as to their preeminence in strength, resiliency, endurance and all around dependability. There is a Harvey jobber with a large stock of Harvey springs on hand in every state in the Union, and it is his business to see that your order is filled and shipped by the fastest route whenever you call.

Harvey Spring and Forging Co., Racine, Wis. Write for copy of Spring Book, giving valuable information.

The Vaporspray.

The Vaporspray is a scientifically designed apparatus for applying paint. The device is in effect a large air brush operating from pressure from 10 to 100 pounds. It is simple, for it has absoluely no adjustments to be made. The size of the spray is regulated by pressure exerted on the thumb button. The further the button is pressed the faster the fluid will flow. Another feature is the fact that the reservoir is an ordinary Mason jar, which can be obtained at any hardware store, thus making it possible to use any number of jars which may contain various liquids. The equipment includes six feet of high pressure hose and connections.

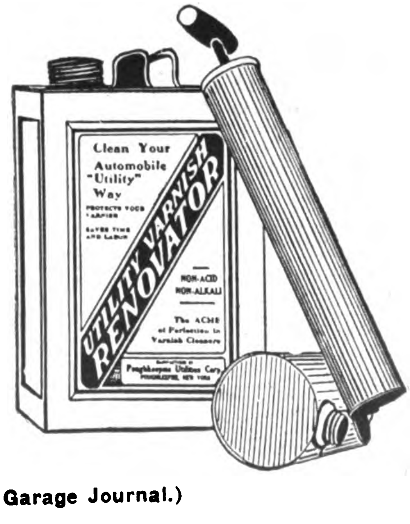
Made by Vapor-Valve Co., 2820 N. Spring Ave., St. Louis, Mo. Price, $16.50.

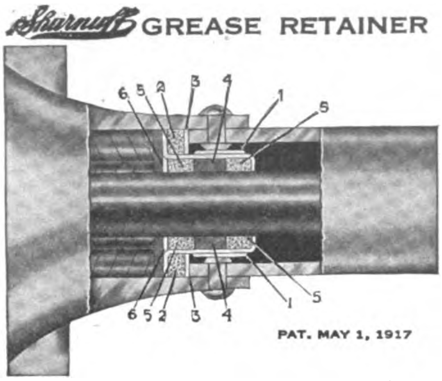
The Wisconsin Auto Top Co., Racine, Wis., manufacturers of the famous Badger Seat Covers, are about to introduce to the trade a new type of automobile top covering in what they have termed "Slip Roof Outfits." These outfits are just what the name implies. They slip over the roof of the car and give an old, shabby top the appearance of newness at half the usual price of a new top. Each outfit consists of a new roof, quarters back curtain with celluloid light and back stays all stitched and ready to slip over the old frame. They are absolutely accurate in fit, as they are cut after the same patterns employed by car manufacturers.

They simplify top renewals and at the same time represent a substantial saving. They are easy to install, anyone who can drive a tack can do the work quickly.

The Utility Varnish Renovator is applied with waste or cheese cloth, or by the spray method. The manufacturers claim that this cleaner will remove road tar and that it contains no chemicals that will damage the finish in any way, being non-acid and non-alkaline.

Manufactured by Poughkeepsie Utilities Corporation, 36 Winnikee Ave., Poughkeepsie, N. Y.


Clean Your Automobile "Utility" Way
UTILITY VARNISH RENOVATOR
NON-ACID
NON-ALKALI
The ACME of Perfection in Varnish Cleaners
Poughkeepsie Utilities Corp.



1. Steel Cup. 2. Large Felt Washer. 3. Large Steel Retaining Ring. 4. Asbestos Washer. 5. Small Felt Washers. 6. Small Steel Retaining Ring.

Shurnuff Grease Retainer for Ford axles consists of three felt washers, one rubber asbestos washer, a cold drawn steel cup and two retaining rings. The retainer remains stationary, the two rivets that are already in the axle preventing it from turning. The company furnishes a counter display free to dealers with each dozen pairs.

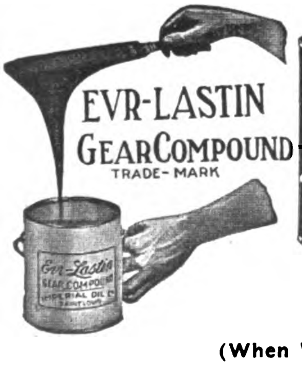
Manufactured by the Shurnuff Manufacturing Co., St. Louis, Mo. Price 90 cents per pair.

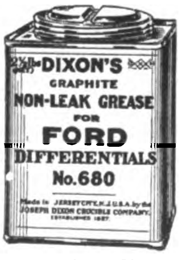
U.S. GAUGE CO. N.Y.

Automobile Gauge.

The U. S. Dash Board Sight Feed Oil Gauge shown in the accompanying cut has a heavy cast case and ring. The flanges are cast solid to the front part of the case, permitting it to be mounted practically flush on the dash. The interior of the case is finished in white enamel. This gauge matches in sizes, shape and finish the company's 1913 design automobile pressure gauges and can be mounted with the other, retaining a uniform and elegant finish on the dash. They have standard connections, ⅛ inch female pipe thread on the inlet and ¼ inch on the outlet.

Manufactured by United States Gauge Co., 67 Wall St., New York City. Price with two-inch dial finished in brass, $4; nickel finish, $4.60.





Dixon's Non-Leak Grease.

PROPER LUBRICANTS ELIMINATE MOST MOTOR TROUBLES.

Motorist Should Have Everything to Provide Thorough and Efficient Lubrication Throughout.

Imagine running the world's work without lubrication! The havoc that would be wrought by friction would result in a complete wreck. The proper lubrication of a motor car is absolutely necessary. Lubricating oil is as vital an essential to the motorist as fuel, the only caution required is to use it constantly on all parts calling for lubrication and to use good judgment in selecting the particular grade for your car. Neglecting to properly lubricate all moving parts of the car is the "sin of omission." The grade of oil selected should not be too heavy or too light. The heavier or thicker oils retain considerable carbon that is burned and accumulates on the pistons, valves and cylinder walls. Too light a grade has too much carbon extracted from it and on that account lacks the vicosity that is necessary for an efficient lubricant. Oil men, as a rule, are only too eager to advise motorists correctly as to the proper grade of oil to use in their motors, as their experience with the problem of proper motor lubrication has been gained by years of exhaustive tests.

In overhauling used cars, all the repaired and renewed parts, as well as those not necessary of overhaul, must be well oiled to start them on the way for the most efficient work. Then the good work once started should be regularly continued. Some of the best and most well known lubricants are put up in sealed retainers, convenient for the use of motorists. These brands are scientifically graded for the particular purposes for which they were prepared.

Thirty-five thousand dollars was lost by a renowned racing driver on account of the lack of oil. In 1912 Ralph de Palma, driving a Mercedes, lost the 500-mile race on the Indianapolis speedway because he neglected to stop for oil. He had been driving his car most consistently up to within the last two laps of two and one-half miles each, leading his nearest competitor, a National, by 15 miles. He neglected to stop at his pit to take on oil, although he realized that his supply was very low. On the second turn from the starting point, one of the connecting rod bearings burnt out, broke and was driven through the bottom of the crank case. He could have hazarded a few extra miles on doubtful tires, or with a small amount of water in the cooling system, but without lubricant in the proper quantities and in the proper places the automobile is a machine that soon ceases to function and the damage resulting from the lack of oil is usually extensive. The experienced motorist never neglects to look over his oil and grease cups every day to be sure that they are filled and functioning properly. This precaution if made a custom is one of the most important points to observe.

Simplex Grease Gun.

Simplex Grease Gun loads and ejects grease in 30 seconds. It is simple to remove the lower cap, insert the gun in the grease and pull up the plunger. Slip off the outer sleeve and the gun comes out as clean as a whistle, all the superfluous grease being left on the outer sleeve. The gun itself can be handled without the least danger of soiling hands or clothing.

Distributed by the Hinrichs Manufacturing Co., Chicago, Ill. Write for prices and literature.

Dixon's Non-Leak Grease No. 680 solves the problem of grease exuding from the rear axle to the brake bands and wheels of the car. Excess grease not only detracts from the appearance, but also produces a danger element, in that the lubrication of the brake bands prevents their proper functioning. It is composed of selected flake graphite, thoroughly mixed with a special adhesive lubricant.

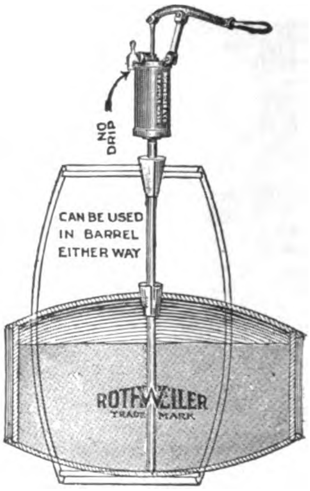
Manufactured by Joseph Dixon Crucible Co., Jersey City, N. J. Write for booklet and dealer's proposition.

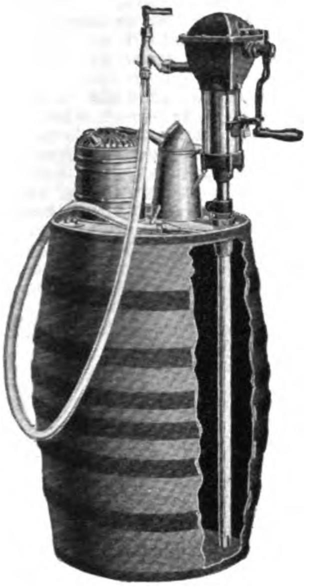
Evr-Lastin Gear Compound is a gear and chain lubricant that is the result of many years experience in developing lubricants. It is composed of five products that make a strictly distinct lubricant for the lubrication of transmission and differential, bevel, spur or worm gears. It is dark in color and very tenacious and it clings to the surface of the metal under heavy pressure. The makers claim that it is only necessary to pour into the gear housing one-third the quantity of this lubricant that is ordinarily required and thus a large saving is accomplished. Furthermore, it is claimed to last pound for pound, three or four times as long as the ordinary transmission oil or grease.

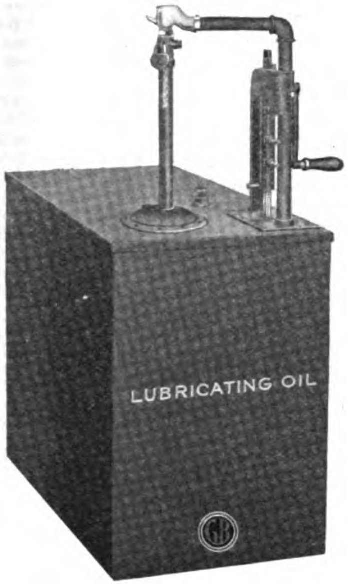
Manufactured by the Imperial Oil Co., St. Louis, Mo. Write for prices.

The Rothweiler Pump effects a saving of oil and greater efficiency in handling lubricants for the motor car. This device consists of a pump which delivers a full quart of oil at each stroke, equipped with a type of spout designed to eliminate dripping, mounted on a long suction pipe, which will reach to the bottom of an ordinary oil barrel standing on end. The suction pipe is fitted with a tapered plug and with this feature can be used in the barrel either from the end or side.

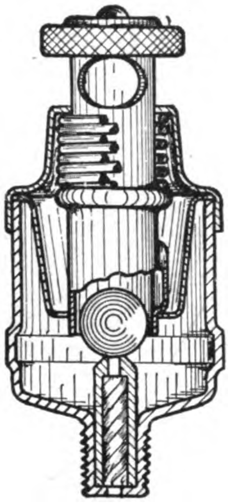
Manufactured by Rothweiler & Co., First So., at Hanford St., Seattle, Wash.


NO DRIP
CAN BE USED IN BARREL EITHER WAY
ROTHWEILER
TRADE MARK





Gilbert & Barker T-30 Handling Outfit.



Consol Oiler.

GREASE CABINET
C
MIDWAY MECH. CO.
ST. PAUL, MINN.

The Groetken Automatic Measuring Barrel Pump can be attached to any shipping barrel of iron or wood, ready for instant use. It pumps and measures liquids in one operation direct from the barrel into container or through a hose into an automobile tank and can be both used stationary or portable. A special barrel cart or dolly barrel truck is made by the manufacturers of this pump, which converts the entire equipment into a portable outfit. The pump is iron threaded with a tapered sleeve bung that will fit any iron or wood barrel bung hole 1½ to 2¼ stand pipe opening. It adjusts itself to height, set screws tighten up on suction pipe holding pump firmly to barrel. This pump gives instant service for automobile oils, one turn of crank displacing one pint, two turns, one quart and so on up to five gallons and repeat. All cranking revolutions are recorded on the register, plain reading of black and white figures on an enameled dial face. The cylinders are seamless brass tubing with an adjustable brass crankshaft, brass valves and the body of pump is close grained iron.

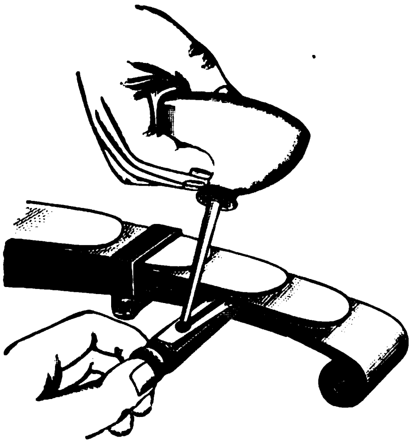
Manufactured by the Groetken Pump Co., Aurora, Ill. Write for prices and literature.

The Gilbert & Barker T-30 Handling Outfit can be furnished as a unit or as a battery of units to handle several grades of oil. The pump measures accurately quarts or lesser quantities; fills the oil can without overflow or waste. A drip pan returns the oil accidentally spilled; a stick gage shows the approximate contents of the tank and a lock safeguards the supply.

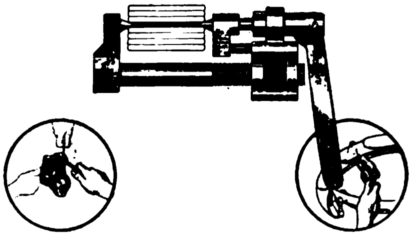
Manufactured by Gilbert & Barker Manufacturing Co., Springfield, Mass. Write for prices and literature.

The Meckel Shackle Bolt Lubricator is secured to the side of the spring shackles and lubricates both the upper and lower bolt. It is designed to fit any make of car in place of the grease cups at present in use. A valve set in motion by the car when running permits the oil to flow and as soon as the car stops the flow of oil is automatically shut off. The lubricators for double shackle bolts have two reservoirs, while those for single spring bolts and spindle bolts have only one. Either of these can be attached in a few minutes the manufacturers claim. One filling of the reservoir is said to last 2500 miles of ordinary travel.

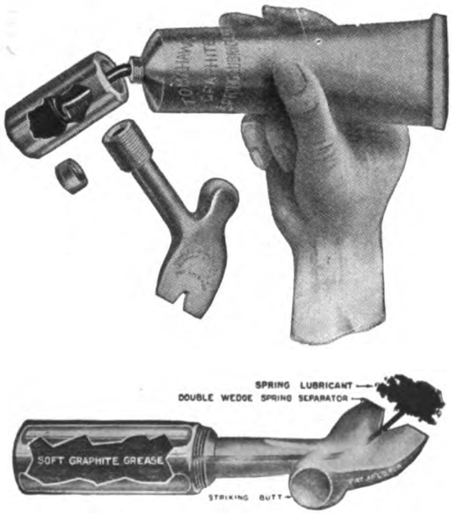
Manufactured by the Meckel Lubricator Co., Lakewood, O. Write for prices and literature.



Cochran Spring Oiler.



Weise Leaf Spreader.



Tomahawk Graphite Spring Lubricator.

Portable Grease Cabinets and Pumps will handle oils and semi-fluid greases and also the heaviest transmission greases. The container is a painted heavy tin can of 20 pounds capacity, with handle and dust proof cover, provided with a nozzle hose. The valve castings have large grease openings, controlled by a single ball valve, assuring simplicity and strength. A baffle washer inside the container keeps the air from the pumps so that practically all the grease can be pumped out. The containers having 8½-inch openings can easily be filled.

Manufactured by the Midway Mechanical Co., 1555 Selby Ave., St. Paul, Minn. Write for prices and literature.

The Consol Automatic Oiler, which is automatic in operation and dirt proof, has many distinct features, fully protected by patents not heretofore used in any oiler. It is neatly made and comes in several styles and finishes. It absolutely prevents leakage of oil onto the bearing when the car is not in motion, for it takes the vibration of the car itself to upset a little ball valve which automatically controls the flow of oil from the cup.

Manufactured by the Consolidated Machine Co., Detroit, Mich. Write for prices and literature.

The Cochran Spring Oiler affords an easy and simple method of getting oil between the springs of the car To use, the car weight is lifted from the springs by means of jacks and the oiler simply inserted between the spring leaves and the oil squirted into the groove of the oiler, from which it flows to the lubricating points.

Manufactured by the Cochran Pipe Wrench Mfg. Co., 7800 Woodlawn Ave., Chicago, Ill. Write for price and literature.

The Weise Leaf Spring Spreader when adjusted to the springs requires but one simple operation of the lever, which is rotable and can be worked or operated at any angle, spreading the springs apart and locking itself into this position, whereupon the springs may be sufficiently lubricated. It can be operated on springs varying from 1¼ to 2¾ inches wide, all parts being interchangeable and practically indestructible.

Marketed by A. F. Weise, 133 W. Washington St., Chicago, Ill. Write for prices and literature.

Tomahawk Graphite Spring Lubricator consists of a case in which graphite grease is inserted, and a double wedge spring separator, through which the grease may be forced in a thin stream. The back of the wedge is fitted with a striking head. When it is desired to use the device the car is jacked up and the tool inserted between the spring leaves, either with the pressure of the fingers or a light tap of a hammer. The grease is then forced out by screwing up on the handle. A spring lubricant is put up in tube form, making it an easy matter to refill the container. Each tube is sufficient for 2000 miles of travel.

Manufactured by Charles W. Mansel Co., 309 Beard Ave., Buffalo, N. Y. Price, $1.25. Lubricant, 50 cents.

The B-W Ammeter has a case of drawn brass finished in either bright nickel or black rubberoid. It is supplied in either surface or flush types. The glass is held in place with a special baked cement, which makes it waterproof, and is further reinforced with a wire locking ring, which eliminates any chance of the glass working loose. The movement is said to be practically vibrationless, that is, not affected by engine or rough road jars. It is of the permanent magnet iron vane type and is not affected by short circuits. The scale is of the usual etched type and several different finishes are optional.

Manufactured by Ballman-Whitten Manufacturing Co., 4440 Olive St., St. Louis, Mo. Write for prices.

The Tungar Rectifier solves the problem of converting this supply of alternating current into direct current, for alternating current cannot be used for charging direct. This device consists of a rectifier tube, rheostat, switch and ammeter mounted on and in a sheet iron fireproof box, which may be bolted to the wall in any convenient place. The outfit has a capacity of six ampheres and 75 volts and may be used for charging from one to 10 three-cell storage batteries at one time, from 115 volt current source. Two leads from the upper part of the rectifier box are connected with the alternating current, while the two lower are connected with the storage batteries to be charged. When the switch is turned on the current flows through the batteries, the rectifier tube need not be shaken to start the flow. If for any reason the source of current should fail the batteries cannot discharge through the rectifier, but will continue charging as soon as the current supply begins again. The device comes complete and ready to attach, the box is amply ventilated to take away the generated heat, compactly made and neatly finished in Japan.

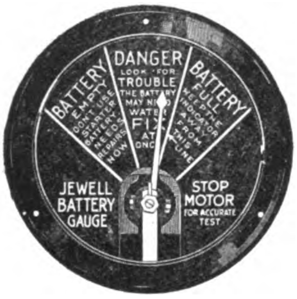
Manufactured by the General Electric Co., Schenectady, N. Y. Write for prices.

The Jewell Battery Gauge is a finely adjusted volt meter permanently located in the battery circuit and so calibrated that the slightest variation in voltage is immediately indicated. The dial is divided into three parts, marked "Battery Full," "Danger" and "Battery Empty," respectively, with instrutions in each of the latter two compartment sections showing what should be done in the event the indicating needle marks these sections. The installation involves only placing of the gauge on the instrument board or any other convenient location and connecting the two binding posts on the back of the gauge to the main terminal of the battery, all of which is done in a few minutes. The gauge is made either flush or flange type, finished all black or with nickel flange.

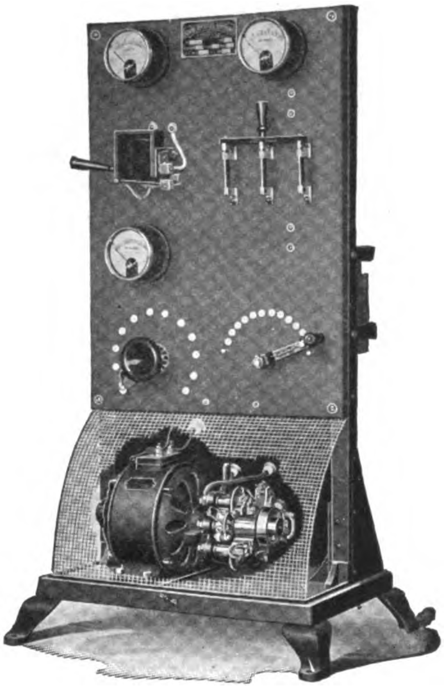
Distributed by the Gray-Heath Co., 1440 South Michigan Ave., Chicago, Ill. Price, $6.

20
10
0
10
20
DISCHARGE
CHARGE
AMPERES
B-W MFG. CO.
ST. LOUIS, MO.

B-W Ammeter.



Jewell Battery Gauge.



The Stahl Rectifier.

The Weston Garage Testing Instrument indicates and locates accurately and quickly the troubles to which electrical systems are liable. Among these are those attributable to deteriorated or run down batteries; short circuits or grounds at any point due to worn sockets; open circuits due to vibration, abrasion or loose lamps; leaks that result in continuous discharge of batteries; brush troubles in the motor or generators or worn commutators, etc. The Weston instrument detects these troubles and is reliable, permanent in calibration and generally serviceable. The instrument illustrated is the Weston model 280 voltammeter, with external shunts for ampere measurements. It is pocket size, has a uniform and legible scale, is quick in action and is shielded from disturbing influences of external magnetic fields. With its six different ranges (300, 30 and three amperes and 30 and three volts and 100 millivolts) it is actually six instruments in one. The price of the instrument is exceedingly low for such equipment. The special inducements offered by the manufacturer will interest every progressive member of the trade.

Made by the Weston Electrical Instrument Co., 103 Weston Ave., Newark, N. J. Write for illustrated literature and prices.

The Hobart Battery Charger meets the requirements of the garage man who intends to do an extensive business in the battery charging line, or for the garage which makes a specialty of this line of work.

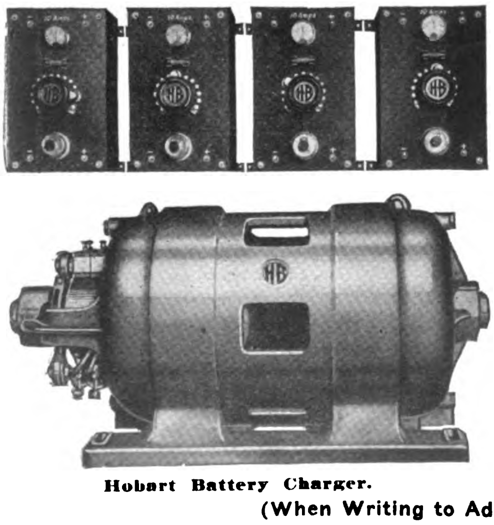
The current generating outfit consists of a standard alternating current motor with generator in the same housing, the shafts of motor and generator armatures being integral. By means of the device alternating current is converted into direct current for charging storage batteries.

For charging panels are provided, each fitted with snap switch, rheostat, fuse, ammeter and binding posts, for connection with four distinct battery charging lines. By means of this equipment different voltage batteries can be charged in the same line, or batteries requiring different charging rates taken care of at the same time.

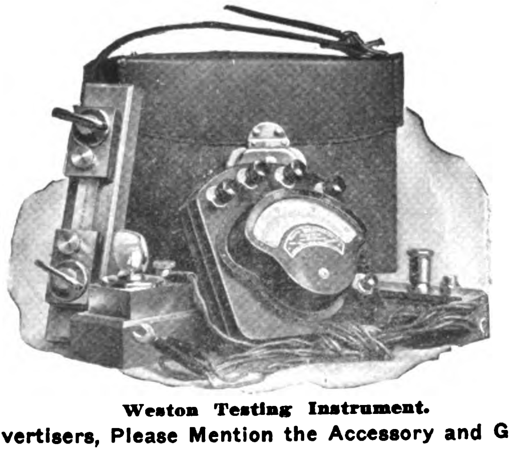
Manufactured by Hobart Brothers Co., Troy, O. Write for full particulars.

The Stahl Rectifier is a low priced rectifying apparatus for garage work. The essential features are a small synchronous motor of special design operating from the alternating current line. This turns a shaft provided with collector rings and a direct current commutator. Alternating current is brought to the collector rings through brushes, taken from the rings and passed to the commutator and finally taken from the commutator as direct current by another set of brushes.

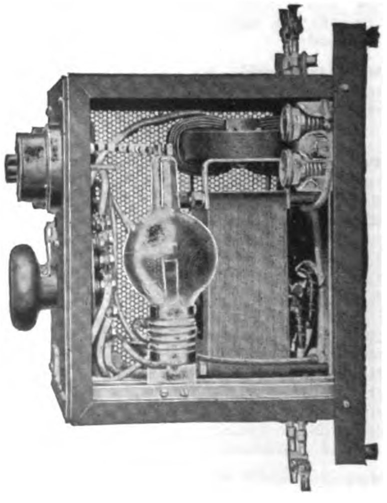
Manufactured by the Stahl Rectifier Co., 536-538 South Clark St., Chicago, Ill. Prices upon application.



Hobart Battery Charger.



Weston Testing Instrument.



Tungar Rectifier.

The Automobile Ignition Coil situation has in the past been a serious problem for jobbers, dealers and service stations, owing to the multiplicity of types on the market. Many jobbers and dealers have had to pass up the coil field almost entirely because of the large and varied stock of coils that would be necessary to take care of all requirements.

The Jefferson Electric Manufacturing Co. of Chicago have recently placed on the market a line of battery replacement coils and fittings which are sufficiently flexible to displace any type of coil on battery equipped cars. The extreme flexibility of Jefferson coils is obtained from several features, which include the fittings, adjustable caps, terminals and mounting arrangements.

With a small stock of Jefferson coils any service station, garage or repair shop will be prepared for any emergency. Heretofore it has been necessary to lay up a car for perhaps several days while a new coil was being obtained. Now, however, any car can be placed in service within a few moments. It is only necessary to remove the old coil and connect the Jefferson.

Starting conditions require a coil that will produce a hot, intense spark when the battery is at the lowest ebb. Jefferson coils are guaranteed to take care of this extreme condition.

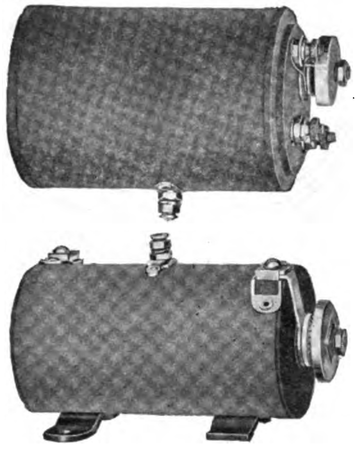
To aid jobbers, dealers, service stations and garage men the Jefferson Electric Manufacturing Co. have compiled a folder containing complete and authentic data covering all standard battery ignition systems. This folder lists all makes of cars from 1912 to the present date and gives the year, model, type of ignition and style of Jefferson coil to be used for replacement. This folder will be sent free of charge to any dealer, garage, service station or jobber. Request should be addressed to the Jefferson Electric Manufacturing Co., 429 South Green St., Chicago.

The Mosco Timer for the Ford car requires but a minimum amount of attention. The shell is made of heavy pressed steel with aluminum finish. The insulating ring is of gray bone fiber. The terminals are insulated all the way through. The contact arm is of pressed steel and with the brush assembly may be purchased separately.

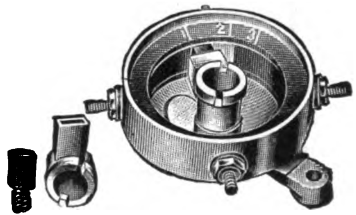
Manufactured by Motor Specialties Co., Waltham, Mass. Write for prices.

The Detroit Motor Governor governs the speed of the Ford engine. It takes the place of the roller or brush in the Ford timer case, where it performs both the function of the brush and a speed regulator. It does not alter the mechanism, but automatically cuts out the distributor by centrifugal action if the engine is running in excess of 1400 to 1600 revolutions per minute. As the engine is slowed the governor releases the brush and it starts to work automatically.

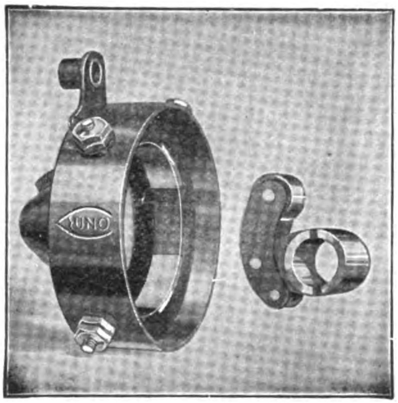
Marketed by the Forthe Detroit Motor Governor Co., Detroit, Mich. Price, $5.



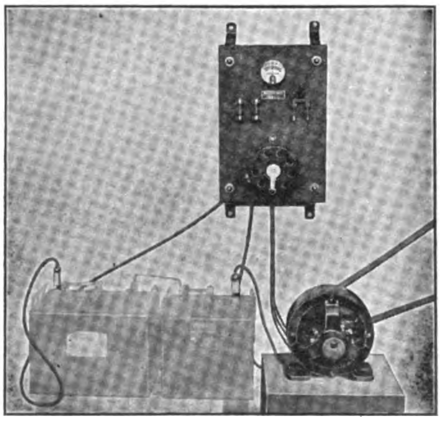
Jefferson Coils.



Oilless Timer.



Cuno Timer.



Superior Parts for all makes of ignition devices and Superior brushes for every type of starting and lighting systems are made of the very finest grade of materials, guaranteed to fit perfectly and are sold with the understanding that the full purchase price will be refunded for any part that does not give entire satisfaction. These parts are absolutely not alloys or compositions, the makers claim, and last longer and cost less.

The parts used in the electrical equipment, the very heart of the automobile, engage the attention of every automobile dealer and repair man in the particulars of their quality and the maintenance of an adequate supply. The necessities of service are prone to require the maintenance of a department and an extensive stock which runs up into a large sum of money. In marketing Superior Parts the makers emphasize these points: Prompt attention to every order; the making of parts from the finest grades of materials; the most attractive prices to be found in this market and the making of deliveries when promised. These elements of their goods and service have played an important part in the huge success of Superior parts.

Manufactured by the Specialty Manufacturing Co, 637 Massachusetts Ave., Arlington, Mass. Write for prices and literature.

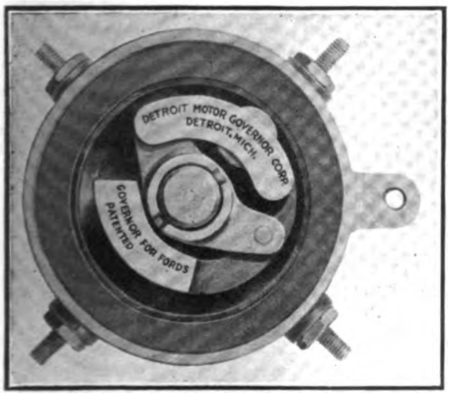
The Main Battery-Charging Outfit generates its own current and operates from a line shaft or an engine by belt drive. It charges from one to five lighting batteries at a time from any voltage from six volts up to 30 volts. The dynamo is high grade, shunt wound and of 250 watts capacity with oil ring type bearings and baked black enamel finish. The outfit consists of a slate switchboard with D'Arsonval type ammeter, rheostat, double pole, single throw knife switch, cartridge fuses, irons for mounting and two large flexible leads with large clips. It is properly packed with blue print and complete instructions for operating any car. It is simple to install and is positively guaranteed by the manufacturers. This company builds a small battery charging set, which is usually driven from a gas engine previously installed in the garage, or a line shaft or motor by belt and it will care for from one to five batteries at a time. It retails at $65.

A larger set, which retails at $140, charges from one to 30 batteries at a time. Still larger sets are built in various sizes at various prices from $300 to $900 and will operate upon gasoline, kerosene or natural gas with equal efficiency.

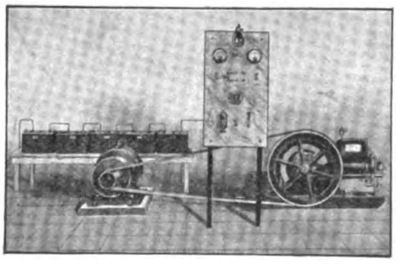
Manufactured by the Main Electric Manufacturing Co., Pittsburgh, Pa. Write for literature.

The "Hyway" Oilless Timer is developed on the system of brush contact used on all electric generators. The brush is special machined of hardened brass, slightly curved to fit the ring. It can be quickly and easily renewed when worn and is the only part necessary to be changed. This timer does not need to be oiled and gives a 50 per cent. longer contact, insuring a fat spark, which makes for better ignition.

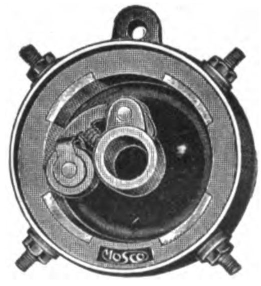
Manufactured by the Hyway Manufacturing Co., 1432 S. Michigan Ave., Chicago, Ill. Price $1.25.



Detroit Motor Governor.



Main Battery Charging Outfits.



Mosco Timer.

The Edgerton Motor Tester is for use in determining if all the cylinders of an engine are working properly and are each furnishing an equal amount of power. It consists of a number of secondary wires which are connected by special easily attached clips with the spark plugs of all but one cylinder. Another wire from the tester is grounded to the engine base, thereby cutting out all but one cylinder. It is then an easy matter to find whether that particular cylinder is running smoothly. By altering the wire arrangement each cylinder may be tested in turn.

Manufactured by R. G. Edgerton & Co., Suffolk, Va. Prices ranging from $2 to $9.50 according to number of cylinders and type of tester.

The Handy Terminal is for use on practically any type of cable connection, and is connected without soldering. The ferrule is fitted to the cable and the stripped wire firmly held by a copper clip, which is claimed not to work loose. The jaws of the device are threaded on the inside and engage the threads or the spark plug center bolt. One motion raises the ring, compresses the steel spring, releases the terminal and lifts it from the bolt. There are no nuts to tighten or work loose, and its application takes but an instant.

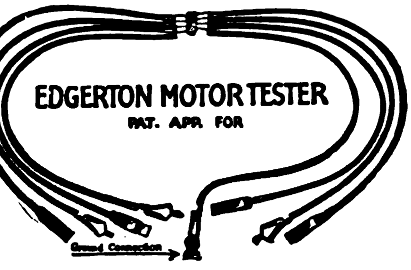
Manufactured by the Francis-Rand Co., 400-401 Erie Bldg., Cleveland, O. Price 25 cents each.

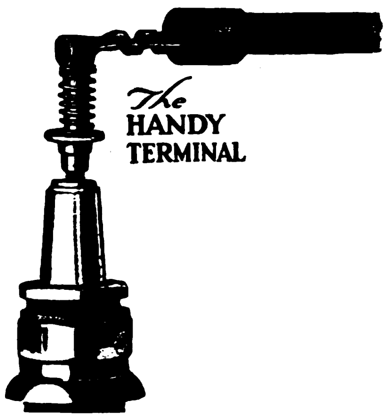
The B.-W. Magneto Tester makes it possible to test Ford magnetos without removing the magneto from the engine and it constantly checks up and indicates any trouble. The tester consists of a reactance coil and an alternating current ammeter, all mounted in a neat wooden case. The scale of the tester is calibrated to show the proper strength of Ford magneto upon any model. The tester serves its greatest purpose when the engine is on the bench. It enables one to get the magneto perfect before reassembling the engine in the chassis. This is done by grounding one of the leads of the tester to the engine and holding the other lead to the contact of the coil frame with the fingers. The other hand revolves the flywheel. This can be done fast enough so that the tester will give a steady, accurate reading. Other tests can be made quickly and accurately by running the engine at any moderate speed, without disassembling, and the tester will indicate the exact condition of the magneto.

Manufactured by the Ballman-Whitten Manufacturing Co., 4440 Olive St., St. Louis, Mo. Price, $10. Substantial discount to dealers.

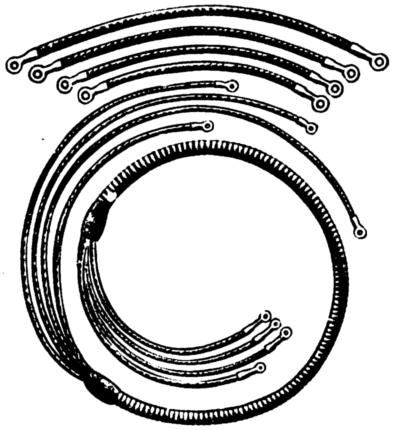
The Hubbell Toggle Switch is quick to work, slow to wear and drops instantly into place and will quickly break the connection with a flip of the lever. It is easily installed upon the dash and requires no complicated movement of the fingers to send it into action. With the handle up the current is on and with the handle down the current is easily detached, making the switch fool proof. All types are made, meeting the regular standard and special switch requirements.

Manufactured by the Harvey Hubbell Co., Inc., Bridgeport, Conn. Write for prices.

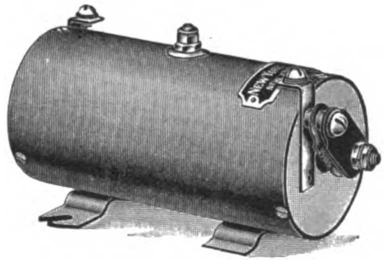




Application of the Handy Terminal.



Ford Ignition Outfits.



New York Transformer Coil.

The Marvel Spark Plug Intensifier overcomes ignition trouble on internal combustion engines. The spark that is produced at the point of the spark plug when the spark gap is in series with the spark plug, results in a fatter, stronger, better spark than would otherwise be produced. The spark produced with the gap permits the use of a leaner mixture, that not only saves gasoline, but also cuts down carbon deposits in the cylinders. This is because carbon comes largely from the partially burned gasoline, resulting from the use of too rich a mixture. Another advantage is that with the spark gap all plugs give the same intense spark no matter if they are old.

Marketed by Wm. Simpson, 228 S. Wells St., Chicago, Ill. Price 35 cents each. Write for literature.

The Vibrator-les Coil Ignition System for Ford cars consists of a timer distributor unit, which is designed for mounting on the front of the engine and driven from the present camshaft projection. The distributor unit is similar to the conventional high-tension distributor, while the timer, or breaker box, is so arranged that with every break in the circuit a shower of sparks is produced by the coil, which is mounted on the engine. Current for the system is taken from the Ford magneto, and such is the construction of the breaker box that the "dead" points of generation in the magneto do not effect its working. This system is said to work equally well either on dry cells or storage battery.

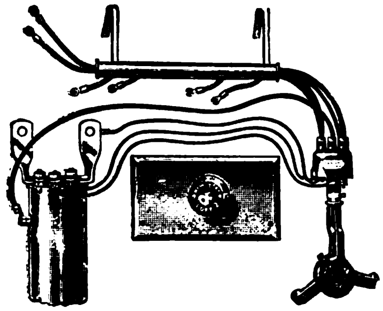
Manufactured by New York Coil Co., 338 Pearl St., New York, N. Y. Price complete, $20.

The New York Transformer Coil is interchangeable with any supplied on all modern battery ignition systems. They produce a hot flame at all engine speeds on a minimum amount of battery energy. Operating on very low voltage they mean getting away from starting troubles that have been attributed in many cases to the inability of coils to supply a sufficiently powerful spark at the instant of starting, as at this time the starting motor's drain on the battery is so heavy as to reduce the voltage in many instances to four volts or less. The condenser is of the proper construction to insure long life of contact points in the distributor.

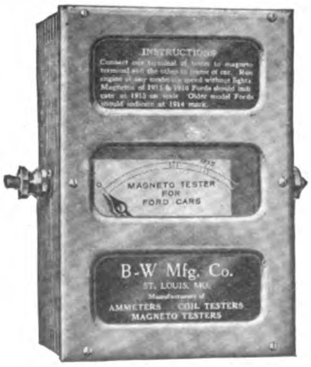
Manufactured by the New York Coil Co., New York, N. Y. List price on all models $9 each.

Ford Ignition Outfits include a complete set of primary and secondary wiring of the highest grade wire. The cables are cut to correct lengths and finished with soldered terminals or black rubber nipples if so desired. Low tension wires protected with cable insulation are furnished where the wiring is exposed to grease or oil drippings. The wires are in contrasting colors, which make sure of proper replacement.

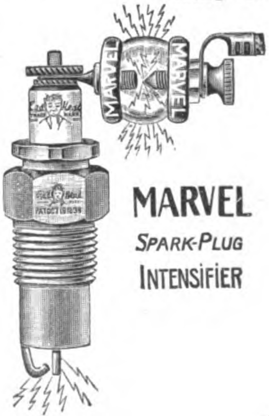
Manufactured by the S-E Motor Engineering Co., 14 East Jackson Boulevard, Chicago, Ill.

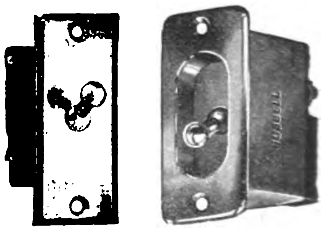


Vibrator-les Coil.


INSTRUCTIONS
Connect one terminal of tester to magneto terminal and the other to frame of car. Run engine at any moderate speed without lights. Magnetos of 1915 & 1916 Fords should indicate at 1915 on scale. Older model Fords should indicate at 1914 mark.
MAGNETO TESTER FOR FORD CARS
B-W Mfg. Co.
ST. LOUIS, MO.
Manufacturers of
AMMETERS COIL TESTERS
MAGNETO TESTERS

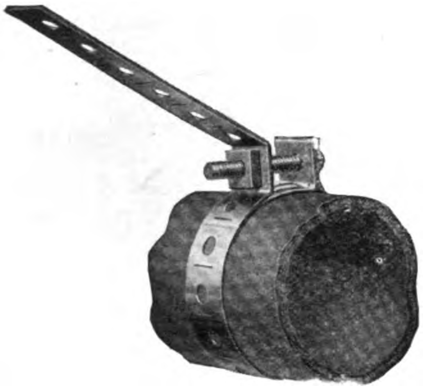
Magneto Tester.





Hubbell Toggle Switch.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)



The Wasco Garage Heating System is a coal stove which is a well designed small boiler, for it is water jacketed from the fire box to the top. This water jacket is fitted with two connections to the radiating system and with an expansion tank which is designed to regulate the temperature of the boiler. Inside the tank is fitted an air tight float, which is connected through regulator rods with a griddle damper in the chimney. As the water in the radiator reaches a predetermined temperature its expansion in volume raises the float in the expansion tank and closes the damper. As the water is cooled and contracts the lowering of the float opens the griddle damper and the increased draught causes the fire in the stove to burn brighter. The radiating system is of the unit form, each radiator measuring 13 inches by seven feet three inches. It is designed for heating one automobile space, more units being added for larger installations. It is said that the system consumes very little coal, as for a one car system, one skuttle of coal daily will suffice. Because of the automatic regulating device temperature the system requires but very little attention. The installation is simple, as all joints are made up to specifications at the factory and fitted, nothing is required but assembling in the garage.

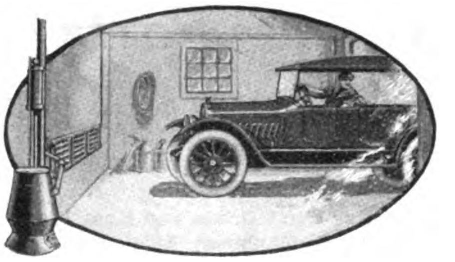
Manufactured by W. A. Schleit Mfg. Co., Inc., Syracuse, N. Y. Write for prices and literature.

"Universal" Adjustable Hose Clamps are made from cold rolled ribbon steel with screw and nut ready to attach, and it is pliable enough to easily wrap around and conform itself to the shape of a hose or pipe. The clamp ribbon has holes one-half inch apart along its middle portion and in these holes lies the secret of its adjustment. Between these holes are preforations, which make this clamp so successful. The preforations permit the bending of the ribbon with a slight pressure of the hand or pliers, forming a seat for the bottom of the nut. After the clamp is applied and the screw fully tightened the excessive stock may easily be removed by breaking it off at the score next above the nut.

Manufactured by the Universal Industrial Corporation, Hackensack, N. J. Made in two sizes, "Senior" and "Junior." Write for prices and literature.

The Gilbert & Barker T-35 Gallon Quick Return Curb Gasoline Pump is especially suitable for the large garage or filling station. It discharges five gallons or less in 20 seconds, at the same time automatically filtering the gas. A large figure indicator on both sides shows the operator and customer the exact amount pumped. A 100,000 gallon meter records all the gasoline pumped. Discharge is made from overhead and a draining device completely drains the hose after each operation. A 16-inch globe lettered "Gasoline" tops it all, and when illuminated at night shows the motorist where to get his gas. It is strongly built, handsomely finished and saves time both for the motorist and the garage man.

Manufactured by Gilbert & Barker Manufacturing Co., Springfield, Mass. Write for prices and literature.

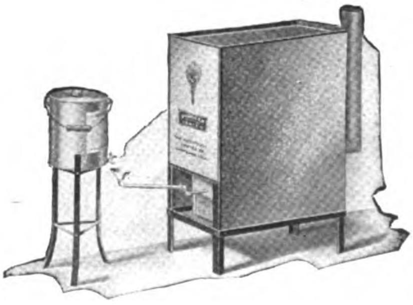


The Wasco Garage Heating System.

FILTERED GASOLINE
Wayne

Bowser Oil and Gasoline Storage System.

Gilbert & Barker Quick Return Pump.



Scientific Garage Oil Heater.

Imperial Gas Tank Seal.

The Imperial Gas Tank Seal meets the call of the times for gasoline economy. Perhaps the greatest waste of gasoline has been the one least thought of—that which evaporates or is jolted through the vent hole of the gasoline tank. Tests at the Armour Institute of Technology and the Associated Engineering Laboratories have proved that this waste of gasoline can be stopped by the Imperial Gas Tank Seal. It works equally well with gravity or vacuum systems and is so simple it cannot get out of order. The valve admits air automatically to replace the gasoline that is drawn out. It is easily installed in a few minutes time, fitting in a hole in the filler cap three-eighths of an inch in diameter.

It is claimed that on the average machine fuel bills can be reduced from $12 to $40 a year by saving gasoline of that value from being wasted. The Imperial Gas Tank Seal is the only device of its kind on the market.

Manufactured by the Imperial Brass Manufacturing Co., 517 S. Racine Ave., Chicago, Ill. Price, $3.

The Scientific Garage Oil Heater burns either fuel oil or kerosene and embodies a new principle of oil burning. The burner itself is wickless and sootless, and no matter how strong the flow of fuel it will give perfect combustion. It is so constructed that all heat escapes from the top and none is radiated from the sides, thus making it practical for garages where there is little space between walls and car. It is built on the principle of the miner's safety lamp by which all air for combustion is taken through a fine gauze and through which flame cannot pass. Gasoline can be poured around the heater without danger of fire. The manufacturers claim a minimum use of fuel to heat the ordinary sized garage and eliminating danger of freezing, damage to body finish, etc.

Manufactured by the Scientific Heater Co., Cleveland, O. Write for prices and literature.

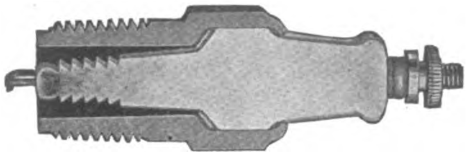
Bowser Oil and Gasoline Storage Systems are being used by thousands of garage owners. They protect oils and gasoline from deterioration, evaporation, dust, careless handling and accident. They deliver accurate quantities with rapid action and pump the contents directly into the car container. Their strength, simpleness, durability and beauty of design, together with their speed of operation, make them a paying addition to any garage.

Manufactured by S. F. Bowser & Co., Inc., Fort Wayne, Ind. Write for prices and literature.

Everlasting Hose is a flexible gasoline hose in which no rubber is used. At the same time, however, it has the flexibility of rubber tube. It is constructed of a flexible steel core, covered with two plys of gasoline proof compound. Outside of this is a braid covering, which is protected by the final outside covering of water proof woven fabric. This hose is guaranteed for one year and is sold in any length and is made in two sizes, with couplings attached.

Manufactured by Chicago Tubing and Braiding Co., Chicago, Ill. Price, ¾-inch size, $1 per foot; 1¼ inch size, $2 per foot. Couplings extra.

Supplies and Parts Section



The A. C. Carbon Proof Spark Plug is a new type of this famous make of plugs and a sectional view is reproduced herewith. This plug was designed primarily to overcome the carbonizing trouble experienced in a certain tractor engine using kerosene as a fuel. The results were so satisfactory that it was decided to put the plug on the market for use in automobile engines. It is made in sizes for the Ford, Overland and Studebaker cars, and in tests on Ford cars covering a period of one year the manufacturers claim that no instance has been found where a plug was removed on account of carbonizing. The porcelain is provided with a number of ribs, having saw tooth edges which attain a sufficiently high degree of heat to burn away the carbon, thereby keeping the edges free from deposits and eliminating any chances of possible short circuit.

Manufactured by the Champion Ignition Co., Flint, Mich. Write for prices.

The Vitristone Priming Plug may be applied to practically any engine which is not equipped with priming cups and consists of a combination spark plug and priming cup. The design and construction are such that by injecting gasoline into the priming cup the gasoline flows directly to the firing points. The priming cup feature makes the plug self cleaning, in that the engine may be run on the other cylinders, while each cup is opened in succession, thereby forcing out the carbon and cleaning the points.

Manufactured by Emil Grossman Manufacturing Corporation, No. 20 Bush Terminal Bldg., Brooklyn, N. Y. Price $1.50.

The Champion Spark Plug Cleaner consists of a glass tube containing 50 loose, hardened steel needles. One end of the tube is open and fitted with a rubber bushing into which a spark plug can be screwed in exactly the same manner as it fits into the cylinder head of the engine. The tube is half filled with gasoline, the plug screwed into the bushing, then the whole is shaken vigorously for a minute or two and the plug is cleaned as thoroughly as if it were disassembled and cleaned. When the tube is shaken it starts the needles in motion and they peck away at the inner surface of the plug where the carbon has accumulated.

Manufactured by the Champion Spark Plug Co. of Toledo, O. Write for prices.

The Herz Spark Plug has a mineralized mica core, which the makers claim is absolutely oil proof. This core is a built up system of mica washers around a tightly wound tube of ruby mica, highly compressed into practically one solid mica unit, which is impervious to oil, heat and moisture.

Pro-Mo-Tor Fabricating Corp., 245 West 55th St., New York, N. Y. Price $1.50 each.

SPARK PLUGS ARE THE HEART OF THE ENGINE.

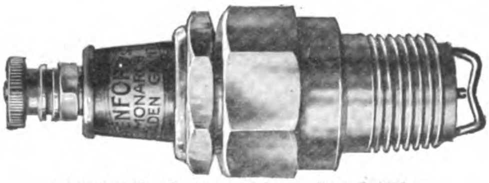
Must Be of First Grade and Kept Working at Maximum Efficiency for Best Results.

Most spark plug troubles are attributable to the fouling of the contact points, which is due to the excessive collection of carbon on the points, which impedes the perfect firing of the plug or stops it entirely. Plugs have been so highly standardized, as to sizes for all motors and advantages in construction, that there are a great number of makes that are recognized as highly efficient and durable. There are some plugs on the market, for which their manufacturers claim special advantages as to durability and efficiency.

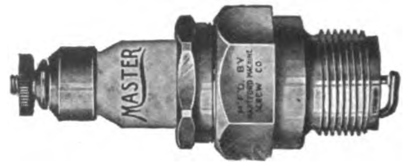
Here are important points to consider in the use and selection of spark plugs: The plug must be perfectly gas tight. To test a plug for gas leakage around the porcelain at the top of bushing or below the bushing where it is screwed into the shell of the plug, squirt gasoline at these points when engine is running. If the gasoline bubbles the plug is not gas tight. The proper adjustment of the plug gap is important. A leading authority recommends the distance between the firing points as 1/32 of an inch for coil ignition and 1/64 of an inch for magneto ignition. This distance is usually ascertained by inserting a piece of ordinary thickness of cardboard between the points, which should measure nearly accurately the proper distance of the gap. All spark plug manufacturers have thoroughly standardized the sizes of their plugs to fit nearly every engine built, with special types, such as a long shank plug for motors with a deeper combustion chamber. Caution should be exercised against buying plugs too short or too long.

Benford's Golden Giant Spark Plug is made of the best materials, in accord with the most scientific design, and has a generous shell, a blue adamant insulator, pure nickel electrodes and specially processed copper asbestos gaskets.

Benford Manufacturing Co., Mt. Vernon, N. Y. Write for prices and literature.



Benford's Golden Giant Spark Plug.

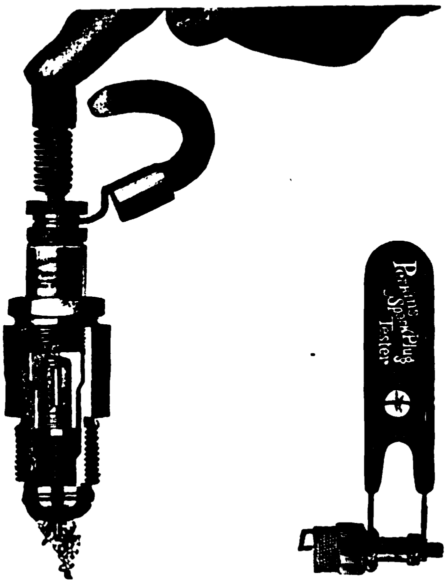


Master Calorite Spark Plugs involve the discovery of the new insulating material known as Calorite, and its adoption in the Master plug, the makers claim, has revolutionized the spark plug industry. This substance subjected to severe electrical tests in competition with porcelain, as an insulating material, withstood a 10 per cent. higher voltage than the finest porcelain obtainable. Every Master Plug is wrapped in felt and packed in a round metal box that may be carried in the tool box, without fear of breakage.

Manufactured by the Hartford Machine Screw Co., Hartford, Conn. Write for prices and literature.

The Push Clean Spark Plug is an innovation in spark plug design and consists of a conventional base, porcelain and centre electrodes. The feature is the movable centre electrode, which is so constructed that by pressure upon the insulated top it may be pressed down, scraping away the carbon from the inside of the porcelain, as well as from the spark gap. Two seconds time will suffice to clean all four plugs, as there is no necessity for their removal from the engine. The illustration gives a clear idea of the construction.

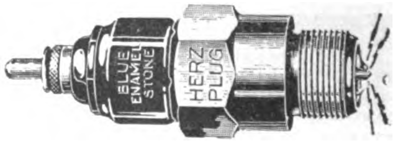
Manufactured by Wellman-Howe Manufacturing Co., 21 E. Van Buren St., Chicago, Ill. Price $2.

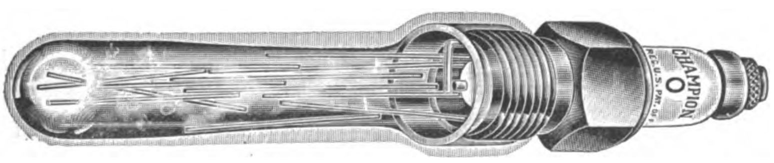


Push Clean Spark Plug.

The Perkins Spark Plug Tester is made for the purpose of locating faulty ignition plugs and for setting the spark gaps in all plugs so that they will be in "tune." The tester is made in two colors, black and red, neatly finished of high grade insulated composition. Using this device assures one of maximum efficiency of the spark plugs.

Manufactured by A. D. Perkins, 1777 Broadway, New York, N. Y. Price 75 cents.





Champion "Minute" Spark Plug Cleaner.

Dyer Lightweight Piston.

The Dyer Lightweight Piston is designed to fill a want for a light yet strong piston for Ford cars by the owner who is remodeling his car. The piston is made of a specially tough metal carefully machined and has special oiling features. These pistons are made in standard and oversizes and are sold complete with wristpins and rings. Each piston weighs 2¼ pounds, or one pound less than the Ford piston. In addition to the extreme light weight is the feature of uniform balance; each piston is limited to a variation of two ounces.

Manufactured by the G. H. Dyer Co., Cambridge, Mass. Write for prices and literature.

The Taylor Leakage Proof Ring the makers claim does away with all loss of compression, oil throwing, carbon trouble and loss of power. The interlocking, underlapping joint makes a perfect seal, which compression or explosion gases and oil cannot break. It is made in 3¾x¼ and 3¾x3/16 sizes and is strong and durable, being ground to accurate size. It wears uniformly, having no points to break or catch carbon.

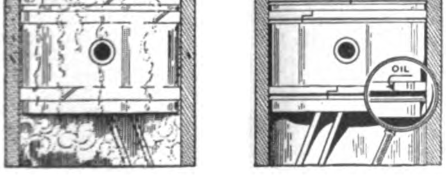
Manufactured by the G. H. Dyer Co., Cambridge, Mass. Write for prices and literature.

The No-Leak-O Piston Ring or Oil Sealing Ring is a specially designed piston ring that has a deep groove cut around the face of the ring with a scraping edge, in combination with a lap joint, which is said to form a perfect seal of oil; that is to say, with the groove full of oil around the ring, the gas cannot escape, the refuse of poor oil cannot work into the crank case, nor can the oil from the crank case work into the combustion chamber.

Write for booklet M, Automobile Accessories Co., 816 W. North Ave., Baltimore, Md., or to Auto Appliance Co., room 500, 110 W. 34th St., New York.

M-P Piston Rings are of one piece construction and are guaranteed by the manufacturers to produce perfect compression when installed in cylinders that are not warped or scored. This ring is made of special close grained cast iron and is accurate by machine to the .001 part of an inch of specified dimensions. The illustration shows clearly the simplicity of design and one piece construction.

Manufactured by the Metal Products Co., 3205 South Broadway, St. Louis, Mo. Prices for 5⅞ inch in diameter to 5½, $1.50; four inch to 4⅞ inch, $1.25.



No-Leak-O Piston Ring.

REPLACEMENTS OF THE PISTON RINGS AND PISTONS.

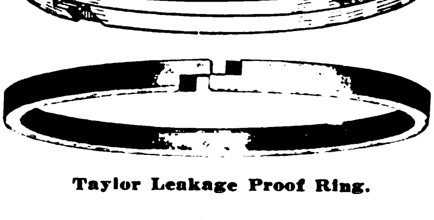
Various Articles on the Market Which Restore the Lost Efficiency in Old Engines.

Pistons may be obtained from the manufacturer of the car or from many outside manufacturers who make a specialty of making pistons for widely used cars.

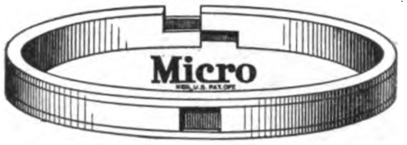
There is a variance of opinion as to the proper composition of the material of pistons. Pistons of an aluminum and alloy composition are preferred by many dealers and others claim that their surface is so smooth that they let the oil get by the rings and throw the oil into the combustion chamber. The argument in their favor, however, is that they are one-third lighter than cast iron pistons, reducing the contact against the cylinder walls, caused by the side to side motion of the connecting rod, thus reducing friction and consumption of lubricating oil. They also withstand great heat and are not easily warped out of their true shape, as such distortion of shape would injure the cylinder walls. Some prefer cast iron pistons, because the metal is more porous and retains the lubricating oil for more perfect lubrication. Oversized pistons for the Ford car, to accommodate worn cylinder walls, are manufactured.

Piston rings are made with an expansion sufficient to hold the compression at every point in its circumference and to prevent the escape of the gas from the explosion chambers. Rings lose their expanding and contracting strength after extreme use and then must be replaced by new ones. A gap is used on all piston rings, which serves to expand and contract the ring, and allows of putting pistons on or for removal. Various types of rings employ different shaped gaps. Experts advise against too tight a gas and compression holding type of ring, because it is liable to prevent the lubricating oil from covering the full length of the piston and cylinder wall.

Various causes are attributed to leaky piston rings: Stuck in the groove, due to a gummy deposit from oil, thus preventing them from pressing against cylinder wall; broken rings that reduce the pressure; joints in line with each other, allowing compression to escape; rings worn from lack of oil; rings poorly fitted to grooves.



Taylor Leakage Proof Ring.



Micro Piston Ring.

Micro Piston Rings are made in two parts and designed to eliminate piston compression leakage. The outer ring seals the opening in the inner ring, and it is said that an equal expansion against the cylinder wall in all directions, producing perfect contact at every part, is obtained.

Manufactured by Micro Piston Ring Co., Inc., 110 Nassau St., New York. Prices upon application.

Pressure Proof Piston Rings, the makers claim, eliminate all possibility of either oil or gas to pass between the cylinder walls and the pistons. The spring expander automatically takes up any excess in the ring groove, thus eliminating the causes of carbon and poor lubrication and effecting the restoration of maximum power.

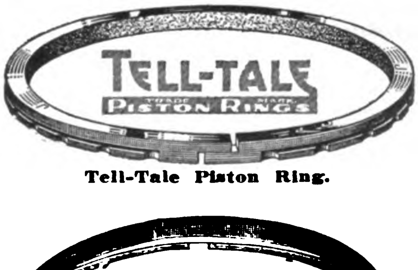
Manufactured by the Pressure Proof Piston Ring Co., 168 Massachusetts Ave., Boston, Mass. Write for prices and literature.

The Gill Piston Ring is of one-piece construction of the concentric type, and with a joint so constructed that it can be opened more than ⅛ inch without there being a direct opening through which oil or compression can pass. The construction of the joint eliminates the use of an extra part to close it. Each ring is made from an individual casting, the scale being left on the inside surface to insure a permanent tension. The joints are cut from the rough castings, and rings are ground with the joints closed, which insures it being a perfect circle when closed.

Marketed by Craig-Wyman Co., 93 Massachusetts Ave., Boston, Mass. Prices $1 and $1.25 according to size.

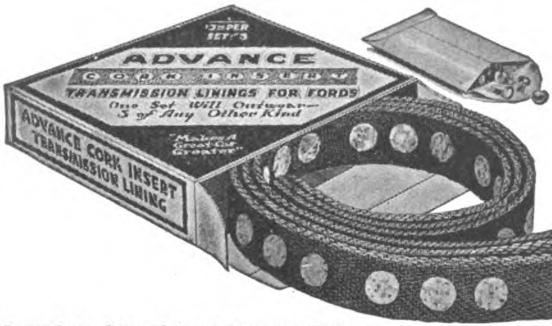
The Tell-Tale Piston Ring is made of a metal which is capable of withstanding a great heat without losing its tension. Each ring is individually cast and retains its scale or resilient strength when finished. The wearing edge is turned and so adapts itself to the cylinder in which it slides. Around the outside is turned a shallow groove or wiping chamber, which is designed to collect any surplus oil and allow it to escape into the crank case through vertical channels cut to the groove at intervals. The joint is of the familiar square lap type, in effect two rings but only one casting.

Manufactured by Vulcan Machine and Tool Co., St. Louis, Mo. Write for prices.



Tell-Tale Piston Ring.

Jointless Ring, Made by Detroit Piston Ring Co.


3 PER SET 3
ADVANCE
CORK INSERT
TRANSMISSION LININGS FOR FORDS
One Set Will Outwear— 3 of Any Other Kind
"Makes A Great Car Greater"
ADVANCE CORK INSERT TRANSMISSION LINING

Complete Set of Cork Insert Transmission **Lining with Fastenings for Ford Car.**

Cork Insert Linings were originated to make the planetary transmission easier of operation and more efficient through the elimination of slipping and in addition it also has been found to give many times the service life due to the gripping and wearing qualities of the cork inserts. In the higher grades of transmission fabrics, buttons of cork are inserted at regular intervals. The corks are slightly thicker than the fabric itself and, therefore, make the first contact with the transmission drums. Because of the high coefficient of the friction of cork and steel the response to the pressure of the brake or speed pedal is immediate and a smooth, velvety stop or start is made.

Cork Insert Linings are manufactured by the Advance Automobile Corporation of 56 East Randolph St., Chicago, Ill., and retail at $3 per set of three.

Roll-Rite Ball Bearings for Fords and Chevrolets automatically take up the side grinding or side thrust movement and dissipate it into a moving anti-friction ball bearing, and by so doing not only prevent side grinding, but allow the present bearings to continue to function properly. A set contains four complete bearings, two of which fit perfectly into each front wheel in conjunction with the present bearings, thus giving four bearings to each wheel, and are in contact with the present bearings, only a felt washer and metal container being removed. The balls in this bearing are held in place by rivetless metal retainers, causing a perfect alignment, preventing crowding together, and allowing each ball to operate independently of the others.

Manufactured by the Roll-Rite Manufacturing Co., Charleston, S. C. Write for prices and literature.

Never-Leak Gaskets combine two standard cylinder gaskets made of copper with a layer of asbestos fabric between the surfaces. These gaskets are carefully made and reinforced at the vital points. They may be obtained for a great number of standard cars and are cut to fit, requiring no alterations. The same firm also manufactures gaskets for practically every part of the engine where packings are necessary.

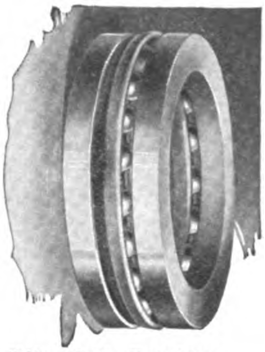
Manufactured by the Fitzgerald Manufacturing Co., Torrington, Conn. Write for catalogue and prices.

Eureka Grinding Compound is made to be safely used on any gasoline engine and the choice of three grades is given: Fine, medium or coarse. It is put up in one-pound cans, which are of the compression type, absolutely air tight.

Distributed by J. H. Faw, Inc., 37 Warren St., New York City. Write for prices.

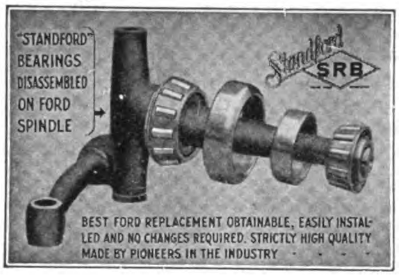
The Shurnuff Combination Manifold is a one-piece casting combining the intake and exhaust, being cast integral and so constructed as to allow the exhausted or fired gases to pass over the intake in such a manner that the incoming vapor is properly mixed and dried before entering the cylinders, thus insuring a smoother running and more powerful engine at all speeds and a saving of fuel.

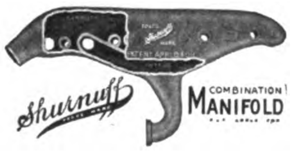
Manufactured by the Shurnuff Manufacturing Co., St Louis, Mo. Write for prices and literature.



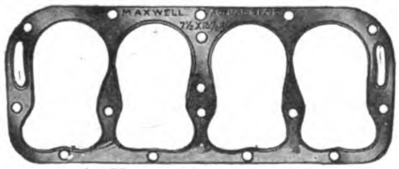
Roll-Rite Ball Bearings.

Permatex Products.

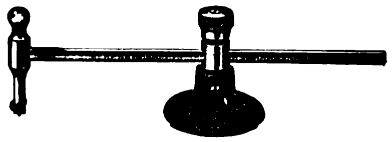

"STANDFORD" BEARINGS DISASSEMBLED ON FORD SPINDLE
Standford
SRB
BEST FORD REPLACEMENT OBTAINABLE, EASILY INSTALLED AND NO CHANGES REQUIRED. STRICTLY HIGH QUALITY MADE BY PIONEERS IN THE INDUSTRY



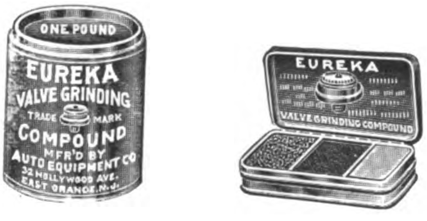
Shurnuff Combination Manifold.



A Never-Leak Gasket.

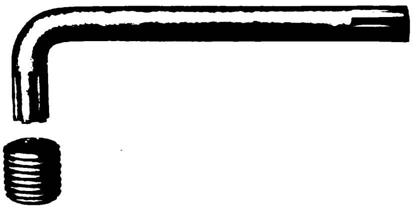


Circular Glass Cutter.



Eureka Grinding Compound.

Atkins Hack Saw Blades.



Bristo Safety Set Screw.

The Atkins Hack Saw Blades have teeth which are milled and set so that they present the square point to the material which is being cut, instead of a corner, as in many other blades. This feature greatly increases the cutting capacity, for with an equal blade travel the blade has fully 25 to 50 per cent. more cutting surface than the blades where the corner only is used. These blades are made of an exceptionally fine grade of alloy steel which responds to scientific heat treatment in a perfect manner. Made in all sizes.

Manufactured by E. C. Atkins & Co., Inc. Write for prices and literature.

The Bristo Safety Set Screw is equipped with dove-tailed slots or flutes, into which the corresponding dove-tailed projections of the wrench fit. When these set screws are being set up by means of this special wrench there is no tendency for the wrench to expand or split the screw, even if great pressure is applied to the handle of the wrench, but instead there is a tendency for the wrench to contract the screw on account of the angles at which the faces of the dove-tailed flutes and slots bear against each other.

Manufactured by the Bristol Co., Waterbury, Conn. Prices for standard and special screws sent upon request. Write for samples.

The Circular Glass Cutter shown in the illustration has a graduated beam that can be quickly and firmly set to cut circles of any size from two to 12 inches in diameter. Each of the cutters is provided with a high grade cutter wheel which has been carefully honed and tested by actual cutting before being mounted in the tool. The standard is equipped with a rubber base to prevent slipping.

Manufactured by Goodell-Pratt Co., Greenfield, Mass. Price 70 cents.

Permatex Heat Resisting Gasket Cement is an extra heavy preparation compounded for use on cylinder heads, carburetors, manifolds, crank cases, gear cases, spark plugs and pump gaskets. It has no harmful action on cardboard, paper, leather, rubber or asbestos or metal, and it is impervious to gasoline, kerosene, oil and water. It is applied in a thin coat to both sides of the gasket just before the gasket is put into place.

Prepared by Constant A. Benoit, Brooklyn, N. Y. Write for prices.

S R B Stanford Bearings are a strictly high grade bearing in design, material and workmanship. It is produced from the highest grade of chrome alloy steel, is made with the same care as the regular S R B taper roller bearings. It is a bearing that absolutely prevents the rollers from going out of line. Race and cone are ground and the rollers cut to a perfectly true taper, making the bearing run freely. It is easily installed.

Manufactured by the Standard Roller Bearing Co., Philadelphia, Pa. Write for prices.

Stevens Cabinets, which are recommended to the attention of garage men and accessory dealers, have a heavy frame of oak with antique finish. The draws have finished oak fronts with combination pull and card holder, the backs and sides being made of heavy steel, galvanized. The utility of cabinets of this kind for the storing of small parts and stock in an orderly manner may easily be recognized. This company's line of cabinets contain items of a size to meet the demand of any purchaser. A typical example is a cabinet with 80 drawers and a closet base, which sells for $56.70.

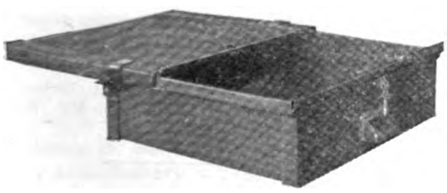
Manufactured by Stevens & Co., New York City, N. Y. Write for prices and literature.

The Water Spray Auto Brush is made of the best grade of bristles, circular in shape and has a hose connection in the center through which water is sprayed. The patented part consists of an aluminum valve forming the handle of the brush and controlling the flow of water as the brush is used. An opening in the bristles enables the user to direct a spray of water at a distance and increase the volume as desired. To use like a sponge the spray is reduced to the amount necessary, the water coming through the bristles, keeping them free from dirt, washing it off the car without scratching.

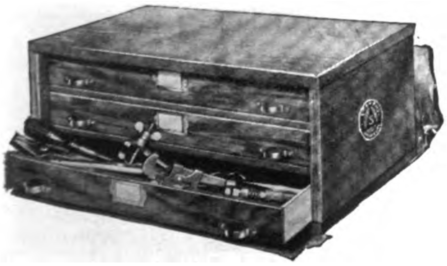
Marketed by the Scully Jones Co., Chicago, Ill. Write for prices and literature.

The "New Britain" All-Steel Bench Drawer is designed to meet the needs of those whose requirements do not demand the wooden back, bottom and front. A hem of triple thickness around the upper edge and the welding of all joints combine to produce a drawer of remarkable strength and durability. With the common type of bench now almost universally used, having a thinner back plank than front one, an open space is left between the back plank and the ordinary type of drawer invites pilfering. This drawer, however, a solid sheet metal top, prohibits any tampering at the rear and prevents a block or a lockout through wedging of the contents. In addition it serves to exclude any oil or water that might by accident soak through from above. The slideways are integral with the top and give to the drawer a smooth, free movement without binding or a cramping tendency. The handle is of generous size, with a shape of special design, which affords a very comfortable hand hold. A cylinder lock of good grade with two individual keys is provided. Master keying may be had if desired at cost. The drawer is sold as a unit, requiring no fitting, easily installed and quickly inserted without any cutting of bench. Weight in shipping order 40 pounds.

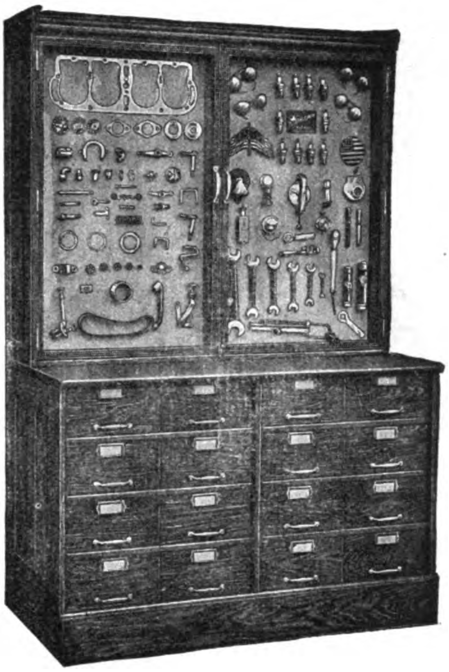
Manufactured by the New Britain Machine Co., New Britain, Conn. Write for prices and literature.



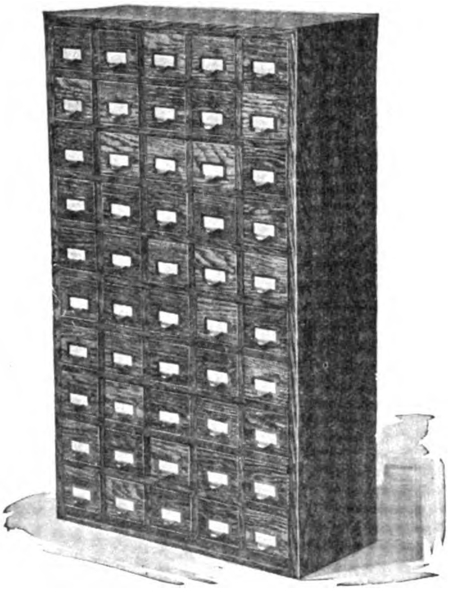
New Britain All-Steel Bench Drawer.



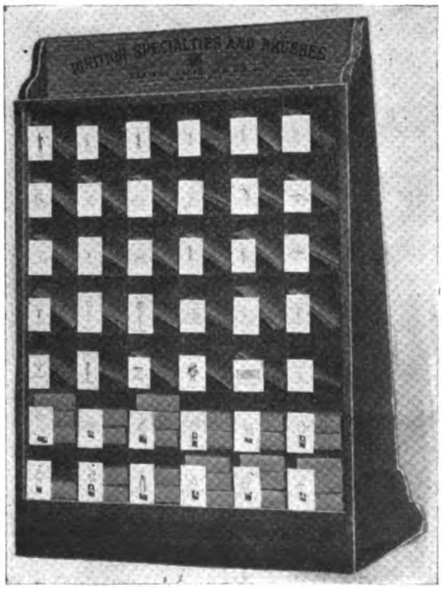
Stevens Tool Cabinet.



Stevens Cabinets.



The Universal Screw Cabinet.



Eastern Display Cabinets.

Eastern Display Cabinets, illustrated herewith, are given free to all purchasers of an assortment of parts manufactured by this company. They make a complete line of coil, magneto, starting and lighting contact parts in both tungsten and platinum, as well as a complete line of metal and graphite brushes. They do not supply alloys in any of their points, but furnish either pure tungsten or pure platinum 15 per cent. iridium. Detailed information may be obtained by writing Dept. "B."

Manufactured by the Eastern Parts Manufacturing Co., 135 Spring St., New York City, N. Y.

The Universal Screw Cabinet is built primarily for garage use, being designed for screws, brads, nails, nuts, bolts, auto accessories and other small articles. It keeps shelves clean and prevents duplication of stock. It will save its small cost many times in a year in providing a place where every screw or part may be put and where everything can be found instantly when needed.

The Universal Screw Cabinet is convenient, serviceable and economical. It is substantially built of oak and steel. The back panel is of sheet steel, making the cabinet proof against dust and vermin. The sides and bottom of each drawer are made from one piece of sheet steel. The back and front of each drawer are wood, making an extremely light and strong drawer that will not stick or bind. The finish is light golden oak, polished brass drawer pulls and card holders. Drawers are 8x3x2½ inches, inside measures.

The Universal Screw Cabinet is made by the Hobart Brothers Co., Troy, O., being furnished in two sizes, 50 drawers (as illustrated), $19.85, and 100 drawers, $34.60.

Union Tool Chests enable the mechanic to keep his tools for instant use in having them always at hand filed according to their adaptability to the job on hand. The cabinet is made in various types and the handle is covered with heavy, genuine leather and has heavy steel wire through the center. Loops secured by rivets carry the weight and cover the ends of the handle which is attached to the chest with heavy cotter pins, absolutely preventing its being pulled out of the loops. The frame is thoroughly seasoned, properly kiln dried selected stock, quartered white oak in quartered oak chests. Plain oak in G chests and basswood for covered chests. The drawer sides are of cherry or maple. The fronts of oak and mahogany. The bottoms of three-ply veneer. The hardware is extra heavy, with polished nickel finish. The lock of Sargent & Greenleaf with 100 key changes, of solid brass and bronze, with two milled slot, flat, rust proof keys.

Manufactured by the Union Tool Chest Works, Rochester, N. Y. Write for prices and literature.

Union Tool Chest.

Laminum consists of a number of sheets of brass .002 or .003 of an inch in thickness, firmly held together by a metallic binder. The appearance is that of a solid piece, yet each sheet may be peeled off, leaving the thickness slightly less than before. It may be purchased in sheets to be cut to any size, or made up into the shape of bearing shims. After the leaf has been peeled off the resulting surface is said to be absolutely smooth, without grain or grit of any kind. The advantages claimed for this type of shimming material are that it is solid, offering no surface for grit to adhere to and that necessary adjustment may be obtained without filing, leaving the surface smooth and free.

Manufactured by Laminated Shim Co., Inc., Canal St., New York, N. Y.

Flexo Laminated Belts are made in sections cut from solid back belting hides-assembled with steel copper plated rivets and fastened with machine screws and nuts so that they may be readily lengthened or shortened and adjusted. These belts may be obtained in widths from ⅝ to 1⅛ inches, and lengths as desired, endless or in rolls of 50 feet.

Manufactured by Detroit Leather Works, Detroit, Mich. Prices upon request.

Aloxite Cloth, which is rapidly succeeding the old time emery cloth for general machine shop work, is put up in economy rolls as well as in reams, sheets and rolls. The cloth is cut in ½, ¾, 1, 1½, 2 and 2½ inch widths, snugly wound upon spools. The operator simply cuts off a piece in any length or width he desires. The rolls are 50 yards long and are made with any degree of grit. Aloxite Cloth is also furnished in 9x11 inch sheets.

Manufactured by the Carborundum Co., Niagara Falls, N. Y. Write for prices and literature.

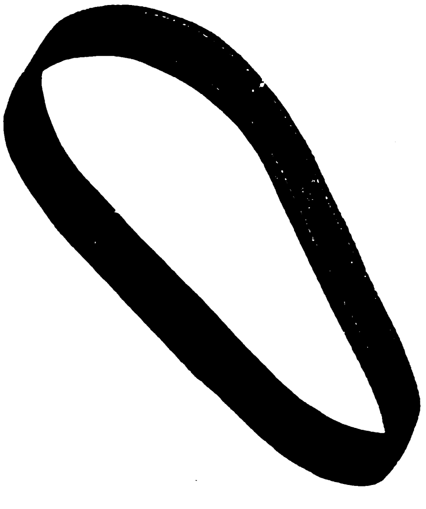
The Cork Insert Ford Fan Belt is based upon the same idea that underlies the well known cork insert transmission linings for Ford cars. In this belt circular pieces of cork are inserted into a high grade tanned and stretched strip of specially water proofed oak leather. The cork inserts are backed up by a heavy fabric to prevent their becoming loose or slipping out. This construction is said to eliminate the slipping, which might cut down the efficiency of the belt.

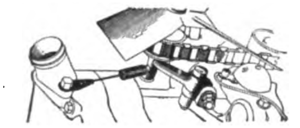
Manufactured by Advance Automobile Accessories Corporation, Dept. E3-1, 56 East Randolph St., Chicago, Ill. Price for 1917 Ford car model belt, $1. For other models, 85 cents.

Carborundum Valve Grinding Compound is one of the standard products proved by time. This product is made to be safely used in any gasoline engine and the choice of three grades is given, coarse, medium or fine. It is put up in from one to five-pound cans and is growing more popular with discriminating manufacturers, engineers, garage dealers and repair men.

Manufactured by the Carborundum Co., Niagara Falls, N. Y. One pound can, $1.25. Five-pound can, $5.

LAMINUM
MATERIAL — SHIMS
PATENTED IN U.S.A. AND ALL FOREIGN COUNTRIES
STOCK SHEETS 6" WIDE BY 36" LONG


Cork Insert Ford Fan Belt.


Swan Fan Belt Adjuster.

COLLAPSIBLE AUTOMOBILE PAIL & FUNNEL
THE FAULTLESS
MANUFACTURED BY THE NATIONAL MFG CO. DES MOINES — IOWA
PAT. DEC 29, 1914.
Collapsible Pail and Funnel.

Aloxite Cloth.

The Automatic Extension Reel is nine inches in diameter by two inches in width, and is equipped with 25 feet of re-inforced cord. The head is provided with a swivel joint, enabling one to carry the lamp in any direction from the reel, and an automatic lock, so that stop may be had at any point. It combines the advantages of taking the light exactly where it is wanted, eliminating the necessity of dragging an extension cord over the floors, where the insulation is soon worn off and fire risks increased through short circuiting. The makers claim that so perfect is the reel's insulation and connections that they have withstood a test of an A. C. potential of 1250 volts—only 250 being required for lamp service.

The Cincinnati Specialty Manufacturing Co., Inc., Cincinnati, O. Write for prices and literature.

The Kahn Automatic Valve, which is standard equipment with Armstrong tubes, is similar in outside size and shape to other tube valves. It is the internal construction that differs. Beneath the knurled collar indicated by the arrow at the top of the illustration is a graduated dial marked with five figures, 50, 60, 70, 80 and 92 pounds. The knurled collar is turned until a certain projection on its face fits into the slot above the figure indicated the pressure desired in the tube. An air supply is connected with the valve by the usual method. When the pressure in the tire reaches the desired figure the valve automatically closes and the air from the pump passes through a by-pass to the outside with a loud, whistling noise, thus giving warning that the tire has the desired pressure.

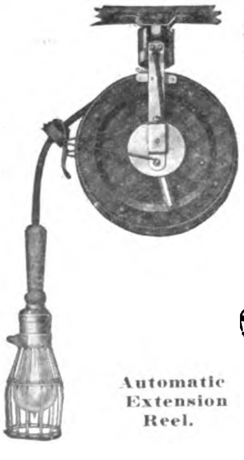
Manufactured by the Armstrong Rubber Co., Inc., 118 Adams St., Newark, N. J. Prices upon request.

The Swan Fan Belt Adjuster, the makers claim, will increase the efficiency and prolong the life of any Ford belt by always keeping it at the proper tension. It consists of a coil spring and a convenient fixture which connects the fan bracket to a stationary part of the engine. It is attached without special tools in less than five minutes.

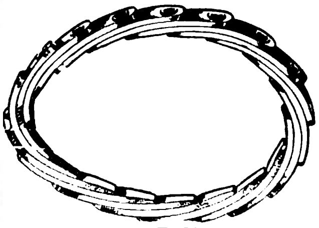
Manufactured by the Mechanical Belt Co., 1202 Frederick Ave., St. Joseph, Mo. Price, 35 cents each.

The Crow Mechanical Fan Belts are made up of links and containers which hold flat leather inserts. It is claimed that with this combination of steel chain and leather friction surface the belt is both flexible and has great gripping qualities. The manufacturers say that but little tension is required for maximum efficiency and that direct contact is assured at all speeds. The links are adjustable and removable, the leather inserts being slipped from the belt at the side, allowing the attaching or renewing of links as desired.

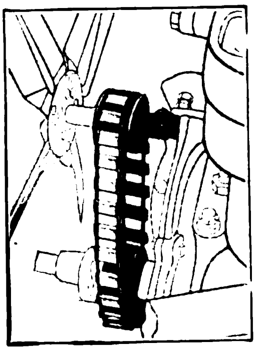
Manufactured by Mechanical Belt Co., 1202 Frederick Ave., St. Joseph, Mo. Write for prices and literature.


Automatic Extension Reel.

COARSE
CARBORUNDUM
VALVE GRINDING COMPOUND
MANUFACTURED BY THE CARBORUNDUM COMPANY NIAGARA FALLS, N.Y.


Flexo Belt.

Kahn Automatic Valve.


Crowe Fan Belt.

HAPPENINGS AMONG THE CAR AND PARTS MAKERS

What Several of the Leading Manufacturers in the Motor Vehicle Industry and Allied Lines Are Doing or Have Under Consideration

The Boone Tire and Rubber Co. is having plans prepared for the construction of a plant at Waco, Tex., for the manufacture of motor car tires and tubes. The factory will have a daily capacity of 750 tires and the same number of tubes.

The Emil Grossman Manufacturing Co., Brooklyn, N. Y., has opened an office in New York for the transaction of export business. Sidney S. Frank will have charge of the office and all its products will be on display there.

The Mason Tire and Rubber Co. announces that the sales for the quarter ending April 30 were $501,540.25. Net earnings for the second quarter were $62,234.02. After allowing for preferred dividend requirements for the period more than 25 per cent. is applicable to the common stock.

The Maynard Steel Casting Co., Milwaukee, Wis., is now known as the Maynard Electric Steel Foundry Co. The company is erecting and equipping a new foundry plant, which will have a capacity of 20 to 25 tons of electric steel castings. The main shop is to be 86 by 250 feet.

The Luverne Automobile Co., Luverne, Minn., is offering a full line of truck unit parts for all types and sizes. The company is the manufacturer of motor fire apparatus.

The Marvel Accessories Manufacturing Co., Cleveland, O., has secured additional floor space of 15,000 square feet. The company has acquired the top floor of a four-story building.

The C. A. S. Products Co., Columbus, O., is to build a factory building 90 by 200 feet. The plant will be ready for occupancy about July 15. Additional buildings will be erected so that the production of the present plant will be quadrupled.

The Peninsular Milled Screw Co., Detroit, intends to erect a factory building on the 10 acres of land the company has acquired.

The Lewis Hall Iron Works, Detroit, manufacturers of the Hall truck, are erecting a one-story frame building 150 by 200 to be used for assembling. The company's output is 45 trucks a month.

Charles B. Bohn Foundry Co. is erecting a new factory which will be 300 by 300 feet and will have a capacity of 40,000 to 50,000 pounds of castings daily. The capital of the company is $300,000 and the officers are: Charles B. Bohn, president; W. N. Kug, vice president; H. W. Holt, secretary and treasurer; O. F. Flumerfelt, manager.

The Shuler Axle Manufacturing Co., Detroit, incorporated for $150,000, has obtained a plant in Louisville, Ky., with 40,000 square feet of floor space and will move to that city.

The Oakland Motor Car Co., Pontiac, Mich., has taken over operation of the local plant of the Northway Motor and Car Co. The plant is now working on a schedule of 300 engines daily.

The Corcoran Manufacturing Co., Cincinnati, O., has secured a plant in the Norwood suburb of Cincinnati and has established itself in quarters which can be well suited to its needs. The old Knabe piano plant is to be changed over to meet the needs of automobile radiator production. The price paid was $100,000.

The C. A. Shaler Co., Waupun, Wis., is planning to increase the size of its factory and will add to its office space. This addition will double the plant's floor space.

The Reliance Motor Truck Co. is erecting a new factory at Appleton, Wis. The first building is to cover an area of 80 by 300 feet.

The Mather Spring Co., Toledo, O., has increased its capital stock from $300,000 to $1,000,000.

THE CORCORAN MANUFACTURING COMPANY

New Plant of Corcoran Manufacturing Co., Cincinnati, O.

The Stork Motor Works and the Wolverine Machine Works have merged into a new company, known as the Stork Motor Co., with a capitalization of $75,000. The concern will manufacture, buy and sell gasoline motors and metal products and conduct a general machine and foundry business. The plant will be located in the building now occupied by the Stork Motor Works. The incorporators are Fred W. Stork, John A. Anderson, C. A. Pennell and G. W. Morley.

The New Era Spring and Specialty Co. of Grand Rapids, Mich., has purchased the plans, manufacturing rights, machinery and equipment of the Parradee Spring auto bumper. The inventor, Edward Parradee, will be construction superintendent.

The Ramsey-Alton Manufacturing Co., Portland, has a war contract amounting to $500,000. It will manufacture parts of army trucks, such as axles, brake blocks and tongues. The working force will be trebled.

The Lincoln Motors Co. is erecting a new administration building at West Warren and Livernois avenues, and will be the third largest factory administration building in Detroit. It will be five stories high, 68 by 208 feet and of brick and Bedford stone exterior. The roof will be of green tile. A statue of Abraham Lincoln will be erected on the lawn.

The Edmunds & Jones Corporation, Detroit, has passed the regular quarterly dividend on common stock. From June 16, 1916, to Sept. 8, 1917, inclusive, dividends were paid at the rate of $1 quarterly, while for the last two quarters the dividend was 25 cents a share. The regular quarterly 1¾ per cent. dividend on preferred has been declared.

The Goodyear Tire and Rubber Co., Akron, O., announces that sales for the six months ending May 1, the first half of the fiscal year, exceeded $66,000,000, showing an increase of 40 per cent. over the corresponding period of the present year. The company is now turning out 20,000 tires a day and is more than two months behind in its orders. A year ago the company had 300 women in its Akron plants. It now employs 3000 women and the number will be increased to 5000.

The Higrade Motors Co., Harbor Springs, Mich., elected the following officers at a recent meeting: President, J. Elmer Pratt; vice president, Frank Voorheis; secretary and treasurer, Lette Shay; consulting engineer, I. W. Coppock; superintendent of purchases and production, Lette Shay. The general sales and advertising offices will remain at Buffalo, N. Y.

The Power Truck and Tractor Co., Detroit, Mich., has leased the manufacturing building at Beard avenue and the Michigan Central railroad and will equip it with machinery.

The Cell-Beam Manufacturing Co., 1101 Bedford avenue, New York City, is marketing the Cell-Beam searchlight direct from the factory through the jobbing trade. This will permit closer cooperation between the jobber and the manufacturer.

The Saginaw Malleable Iron Co., Saginaw, Mich., has increased its capital stock from $400,000 to $650,000.

The Perfex Radiator Co., Racine, Wis., is contemplating the erection of a new plant 125 by 300 feet. The company will equip new machinery and tools for the manufacture of motor cars, trucks and tractor radiators. The capital stock was recently increased to $1,000,000.

The Jeffery De Witt Co. has purchased 1½ acres of land adjoining its plant and will build extensive additions to its plants. The increased demand for spark plug porcelains necessitated the purchase of the property.

The Rowe Motor Manufacturing Co., Dowlington, Pa., has moved the entire organization to Lancaster, Pa. The company manufactures motor trucks.

The Michigan Drop Forge Co., Pontiac, Mich., has declared a quarterly dividend of 1¾ per cent. on the preferred stock, payable on July 1 to stockholders of record of June 15.

The Parrett Tractor Co. has purchased the former plant of the Central Locomotive and Car Works in Chicago Heights, Ill. This plant consists of four one and two-story buildings.

The McCord Manufacturing Co., Detroit, has appointed five new district managers to work under the direction of H. E. Westerdale, manager of the Heath-Duplex division of the company in distributing the Heath-Duplex attachment for Ford cars. Ward Keller will supervise eastern territory; Frank Pilling and Henry Belcher to cover the middle west; J. A. Fields in charge of the northwest, and E. S. Nicholson as resident manager of the Pacific coast territory with headquarters in San Francisco.

The Hercules Steel Casting Co., Milwaukee, Wis., has made arrangements for the erection and equipment of the first unit of its new electric steel foundry plant. The company will erect first a brick and steel shop, 80 by 350 feet, to be equipped with a five-ton electric furnace. The officers of the company are: Joseph Ewens, president; Dr. J. J. McGovern, vice president; E. B. Gennrich, secretary and treasurer. It was recently organized with a capitalization of $300,000.

The Anderson Electric Car Co. has completed its new building, 150 by 300 feet. The new building will be used for the assembling of ambulances for the government.

The Nilson-Miller Co., Hoboken, N. J., has completed a new forge shop adjoining its plant. This plant will be used for steam hammer work and hand forging, as well as case hardening and heat treating of iron and alloy steels.

The Falls Motors Corporation, Sheboygan Falls, Wis., plans to erect several more buildings this year. The company has completed its new machine shop addition, where production has commenced.

The Sunderman Corporation, Detroit, Mich., has moved the offices and engineering force to Newburgh, N. Y. The corporation has erected a factory, foundry and office building. The Sunderman carburetor will be manufactured in Newburgh, but the laboratory will remain in Detroit.

The Globe Seamless Steel Tube Co., Milwaukee, Wis., is erecting two additions to its plant. This will add 50% to the capacity of the company.

The Wichita Falls Motor Co., Wichita Falls, Kan., has increased its capital stock from $400,000 to $800,000. The company will enlarge the capacity of its plant to meet outstanding orders for its product.

The Hackett Motor Car Co., Grand Rapids, Mich., is erecting a new factory. It will comprise three units, 70 by 500 feet each, built parallel and linked together at the end by a two-story unit 60 by 400 feet. The total space will be 180,000 square feet and will give a capacity for producing 100 cars per day.

The Mayo Radiator Division of the Marlin-Rockwell Corporation has moved from New Haven, Conn., to 143rd street and Southern Boulevard, New York City. The factory is a modern five-story building with abundant light and air, occupying the entire city block. The additional room and arrangement of space enables the work to progress systematically from the top floor to the shipping department on the ground floor. Mr. H. B. Gordon, general manager, has appointed Richard Taylor as sales manager, with arrangements for an increased sales force and engineering department in keeping with the enlarged manufacturing capacity. L. A. Drake will act as factory manager and have charge of the production at the new plant. Both domestic and export sales will be handled from the new factory.

L. V. Fletcher & Co. announces that the Hartalt Brothers of Norwood, Minn., have been appointed Minnesota state distributors for Fletcher carburetors and will operate a service station for several important counties in Minnesota.

Smith & Hemenway Co., Inc., Irvington, N. J., is very largely given over to the making of tools for the United States government. The company has been obliged to erect a new building, which is being completed. New machinery of the latest design is being installed and the result will be an increased output and a saving of time in producing it.

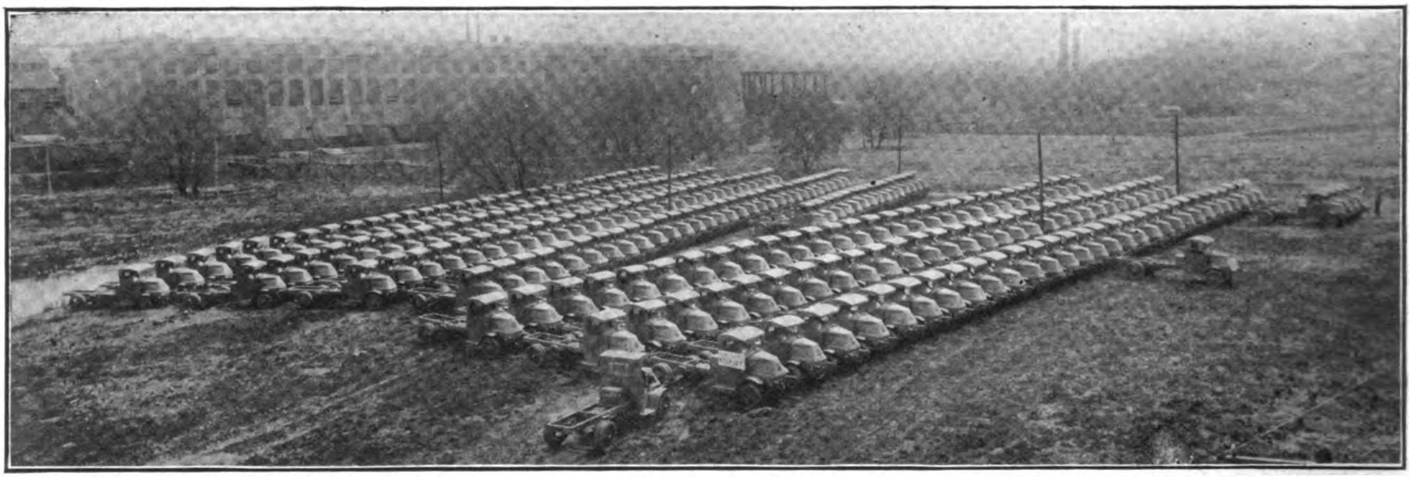
The Auto Safety Light Co. has moved its offices from Kansas City to Detroit. The company are the makers of the Detroit dirigible headlight. B. B. Hausner is sales manager and U. G. Crandall is the inventor.

The Firestone Tire and Rubber Co., Akron, O., reports total sales of more than $7,000,000 for April. This is 37 per cent. increase over the corresponding period last year and is the largest month's business in the history of the company.

The United Motor Service, Inc., Detroit, Mich., have moved its general offices from 3066 West Grand Boulevard avenue to 782 Woodward avenue, where the company will operate exclusively the national system of factory service branches for the Dayton Engineering Laboratories Co., manufacturer of Delco systems; the Klaxon Co., Newark, N. J., and the Remy Electric Co., Anderson, Ind., and Detroit.

The Saxon Motor Car Corporation, Detroit, Mich., has moved its offices to the building formerly used by the Pfeiffer Brewing Co. This building is situated across the street and is more convenient to get to the plant.

The Puritan Machine Co., Detroit, has purchased the service parts business of the American Electric Car Co., formerly of Saginaw, Mich. The entire stock has been moved to Detroit.



More Than 200 Mack Trucks Lined for Inspection Before Acceptance by the Quartermaster Corps, U. S. A., Intended for Service in France When Equipped with Bodies.

N. A. D. A. Gets Big Boost in New England

Nearly Five Hundred New Members Result From Campaign Which Ended With Rousing Convention. Patriotic Aims and Business Objects Strongly Endorsed. Dealers See New Era in Business.

THERE was never so successful an organization campaign in the history of the automobile trade as that which was conducted to increase the membership in the National Automobile Dealers' Association among New England dealers and the wholehearted enthusiasm which accompanied the movement was a most powerful and sincere testimonial to the objects of the association, as nearly 500 of the leading automobile distributors were enrolled.

The campaign wound up with a rousing meeting at the Hotel Brunswick in Boston on July 26, which was attended by dealers from all the New England states and President F. W. A. Vesper of St. Louis and Executive Secretary E. E. Peake of Kansas City explained the conditions in the trade that had brought about the creation of the N. A. D. A. and its patriotic objects in securing conservation of labor, supplies and materials to aid in winning the war.

Vice President J. H. MacAlman of Boston.

When President Vesper and Executive Secretary Peake arrived in the city their expectations were more than realized by the progress already accomplished before the convention was held and later during the course of his speech the latter stated that he must admit that the New Englanders were not as much asleep as the westerners were prone to consider them, but on the other hand they had set a pace which if followed elsewhere would assure a success of the organization even greater than had been hoped for.

President F. W. A. Vesper of St. Louis.

Several weeks ago when it was announced that a drive would be made in New England to increase the membership of the N. A. D. A., the New England division of the organization took on its official form in the appointment of a committee headed by John H. Johnson of Boston, who is one of the national directors. The others on the committee were: Joseph S. Donovan, Studebaker; R. B. Nettleton, Chandler; J. J. McGregor, Oldsmobile; F. W. Stockbridge, Winton; J. M. Linscott, Reo and Republic; A. L. Danforth, Cadillac, and L. B. Sanders, Oakland.

Work was immediately started and meetings were held in Boston every day and members of the committee went to Portland, Me., Providence, R. I., Springfield, Mass., and other cities, meeting with success on every trip. When the committee opened its campaign there were about 85 members of the N. A. D. A. in New England, of which number 50 were Boston dealers. Chairman Johnson at the convention announced that there were 343 new members, making a total of 428 in the New England division. By noon on the following day additional memberships brought the total to 444, and later the number had exceeded 450.

John H. Johnson of Boston, chairman of the New England committee, presided and introduced the speakers after making a few brief remarks on the objects of the meeting, during the course of which he mentioned the vital need of organization, as other merchants so organized received recognition, while in the past the automobile dealer had been looked upon as sort of a peddler.

President Vesper as his first subject treated with the injury that had been done to the business by dealers who referred to the business as a "game" and stated that it was unfortunate that they had created the impression broadcast that this was their attitude toward the business, this being the basis of the whole trouble at present, as officials at Washington and the public considered it a game. He also spoke of the early advertising mistakes in the business and said that many things had been allowed to creep in which, while not appearing injurious at the time, had wrought considerable injury and loss of profit. He stated that the business was without a precedent, which fact made it impossible to compare it with any other. He said that the first time the dealers were recognized was at a meeting of the steel curtailment committee and that previously questions affecting the business of distributing automobiles was settled for the dealer and that he was not really taken into consideration, most of the dealings having been with the factory. The real decision against extensive curtailment of car production came, was the belief expressed by Mr. Vesper, when the statistical information concerning the business was submitted, showing its enormous ramifications. These figures showed that there were approximately 28,000 dealers in the country, with a business investment of $288,000,000 and an annual expenditure of $184,000,000 in salaries, wages, etc., and dependents totaling 230,000 who are employed in garages, or by dealers and distributors.

Executive Secretary E. E. Peake of Kansas City.

Ranking as the third largest merchandising business in the country, being exceeded only by that of steel and clothing, respectively, he pointed out that the dealers should demand that the business be recognized and should object to its being made a mark.

He pointed out the work of the automobile and internal combustion engine in winning the war as an answer to those who doubted the utility of the motor car.

In dealing with the numerous rumors that had been widely circulated throughout the country as to car production curtailment, gasoline shortage, taxes on gasoline and additional taxes on motor cars, he said that there had not been a single solitary thing happen to the automobile yet except things that have been circulated in rumors.

In carrying out the various conservation objects which is a principal purpose of the N. A. D. A., Mr. Vesper called attention to the fact that in effecting these reforms a lot of unnecessary overhead, unessential to the business would be taken away, and in connection with which he mentioned the abuses of the service systems that were employed across the country. The opening of garages, dealers' service stations, supply stores and gasoline stations on Sundays he said was absolutely for the purpose of enabling automobile owners to use their machines for fun and explained how the dealers in St. Louis had established a central service station which took care of the absolutely necessary work on Sundays, but which did not sell supplies and parts.

That these changes in the methods of conducting the business would not only put it on a legitimate basis, but would be a practical demonstration of the dealers' sincere intention of curtailing the use of the automobile for pleasure, was his declaration.

That there was a means open of meeting all the curtailment necessary in the use of gasoline without in any way interfering with the demands of the government was shown by figures quoted by Mr. Vesper on gasoline wastage, which could be prevented. He said the tank wagon losses through drippings was 7200 gallons a day; garage wastage 108,000 gallons a day, leaky and poorly adjusted carburetors 271,400 gallons a day, and idling motors 150,000 gallons a day.

In conclusion he stated that the organization was growing in membership at the rate of 500 to 600 a week and that a large majority membership was assured.

Mr. Peake paid a high tribute to the New England committee that had been so successful in its campaign and stated that through their efforts the New England division had accomplished more for the N. A. D. A. than any other section up to the present time. He also spoke of the beneficial effects this would have on the dealers throughout the country for the good of the organization.

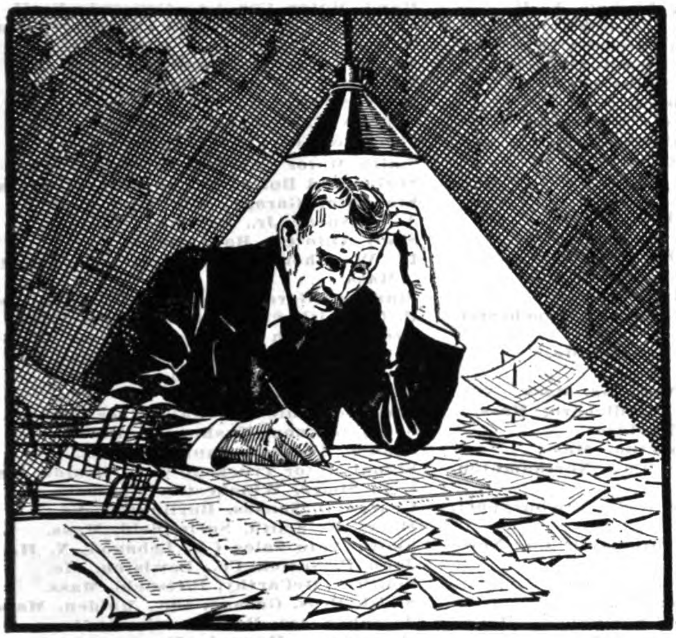
In opening Mr. Peake reviewed the business, stated that many had met with failure through lack of organization and because they had tried to solve problems by themselves instead of finding out the true status of conditions from men in the same business who had more experience. He stated that the cooperation resulting through the organization would lead to the elimination of many of these causes of failure and would make it possible to eliminate many things that the dealers have been doing which they could not afford.

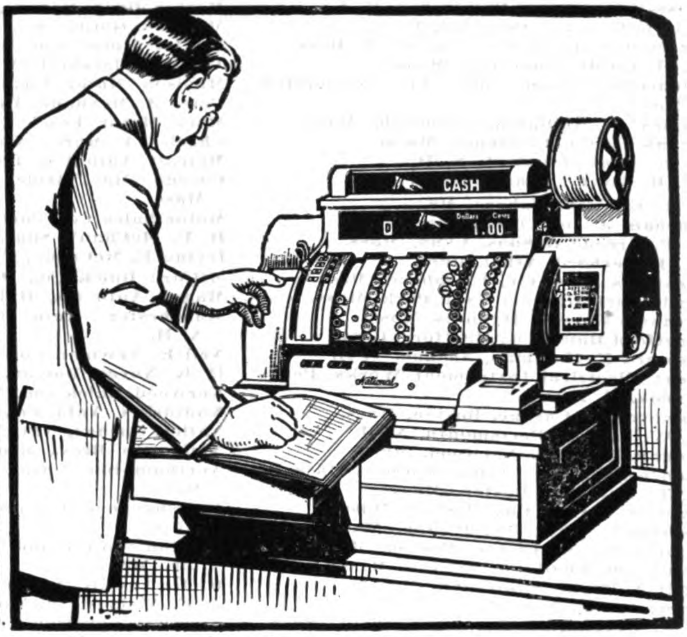
The N. A. D. A. in addition to its patriotic objects would be a great clearing house of ideas for automobile dealers for the purpose of rebuilding and repairing the business on a proper foundation and to eliminate the unsound and unbusinesslike practises that had crept into it. He pointed out that business should not be so founded or conducted that it can only continue under auspicious circumstances, but should be so regulated that when developments arose of an unfavorable nature, it would weather the storm.

A publicity department and headquarters in the hands of capable men to educate the public as to the true guise of the automobile; uniform theft laws throughout the country; uniform license laws were mentioned as objectives for which the N. A. D. A. would also work.

New England Members of the N. A. D. A.

C. C. Abbott, Portland, Me.
Aetna Bottle and Stopper Co., Providence, R. I.
Almy, Bigelow & Washburn, Salem, Mass.
Autocar Sales and Service Co.
William Alexander, Calais, Me.
Frank E. Anthony, Boston, Mass.
Atlantic Automobile Co., Boston, Mass.
Abbott St. Garage, Lawrence, Mass.
Ashland Garage, Framingham, Mass.
Adelaide Garage, Providence, R. I.
B. A. Aldrich Auto Co., Providence, R. I.
Auto Selling and Supply Co., New Bedford, Mass.
The Arrow Co., Springfield, Mass.
Automobile Exchange, Portland, Me.
Bangor Motor Co., Bangor, Me.
Briscoe Motor Sales Co.
Breed's Garage, Hudson, Mass.
L. S. Bean, Presque Isle, Me.
A. J. Bailey Middleboro, Mass.
G. L. Bailey, Woodsville, N. H.
J. H. Bartlett, Contoocook, N. H.
Boston Auto Supply Co., Lowell, Mass.
E. G. Bailey Carriage Co., Portland, Me.
Broadway Sales Co., Providence, R. I.
Brown, Dawson Garage Co., Gardner, Mass.
Bath Motor Mart, Bath, Me.
Becker Stutz Automobile Co., Boston, Mass.
J. W. Bowman Co., Boston, Mass.
Frank L. Brown, Inc., Boston, Mass.
Ruick Boston Co., Boston, Mass.
Beacon Motor Car Co., Boston, Mass.
E. D. Britton Co., Hartford, Conn.
J. H. Bates & Son, Woburn, Mass.
L. S. Burnham, Haverhill, Mass.
Banks Garage, Haverhill, Mass.
Biddeford Motor Mart, Biddeford, Me.
William H. Basset Co., Bridgewater, Mass.
Bennington Garage, Bennington, Vt.
Butler's Garage, Natick, Mass.
Mack Bouchard & Son, Caribou, Me.
Burnett & Sherman, Boston, Mass.
H. E. Bradford, Providence, R. I.
H. J. Brown & Co., Providence, R. I.
Balcom-Brooks Co., Pawtucket. R. I.
F. A. Bryan, Waltham, Mass.
Brewer Bros., Pittsfield, Mass.
Charles Barre, Pawtucket, R. I.
Byrnes-Eldridge Motor Co., Springfield, Mass.
M. C. Barrett, Springfield, Mass.
A. L. Braley, New Bedford, Mass.
C. R. Briggs, Plymouth. Mass.
E. C. Bump, Wilton, Me.
F. H. Beck, Norway, Me.
Bristol Motor Car Co., Attleboro, Mass.
A. J. Cumminskey Motor Car Co., Lowell, Mass.
Carlow Auto Co., Taunton, Mass.
Chase Garage, Brockton, Mass.
Clark & Buck, Colonade Garage, Springfield, Mass.
Commercial Livery & Garage, Inc., Woodstock, Vt.
Cushing Bros., Campello, Mass.
Cadillac Auto Co., Providence, R. I.
Chandler Motors of R. I., Providence, R. I.
Chandler Motor Co. of New England, Boston, Mass.
James Cunningham Son & Co., Boston, Mass.
C. I. Campbell, Boston, Mass.
George W. Canterbury, Inc., Boston, Mass.
Charles Motor Co., Boston, Mass.
Cadillac Auto Co., Boston, Mass.
Connell & McKone Co., Boston, Mass.
Chandler Motors of N. E., Inc., Boston, Mass.
E. H. Chapin Garage, Reading, Mass.
C. L. Curtis, Lewiston, Me.
J. H. Connelly, Hyannis, Mass.
E. L. Crosby Co., Bangor, Me.
Cumberland Motor Sales Co., Inc., Portland, Me.
H. J. Collins & Co., Haverhill, Mass.
Clement Bros., Nashua, N. H.
Chevrolet Motor Co. of N. Y., Providence, R. I.
Central Garage, Braintree, Mass.
Frank Crook, Pawtucket, R. I.
Central Garage, Quincy, Mass.
Clinton Machine Works and Garage, Clinton, Mass.
The F. L. Caulkins Auto Co., Middletown, Conn.
F. S. Curtis & Son, Belfast, Me.
Joseph E. Coty, Freeport. Me.
Cleaves & Sawyer, Saco, Me.
Central Garage, Rockland. Me.
George F. Dana. Lowell, Mass.
F. T. Donovan, Burlington, Vt.
Denbar Hoag Motor Co., Springfield, Mass.
Donovan Motor Car Co., Boston, Mass.
F. A. Dutton Motor Co., Boston, Mass.
E. R. Darling, Woonsocket. R. I.
Dudley Bros., Concord. N. H.
Dunbar Lyon Motor Co. Greenfield. Mass.
Denby Motor Co., New Bedford, Mass.
F. Downing, Moosup. Conn.
Darling Automobile Co., Auburn, Me.
Dunbar-Laporte Motor Co., Holyoke, Mass.
Richard G. Davis, Providence, R. I.
Dim-Semmons Co., Springfield, Mass.
Fred C. Dyer, Rockland, Me.
Harold W. Eager, Manchester, N. H.
Ellison Motor Co., Haverhill, Mass.
J. Edwards & Son, Auburn, Me.
Eaton's Garage, Lawrence, Mass.
Edward N. Eames, Reading, Mass.
Fred Ellis, Lawrence, Mass.
Electric Automobile Service Co., Springfield, Mass.
Electric Vehicle Co., Springfield, Mass.
Eagle Garage, Brunswick, Me.
F. B. Fogg Co., Paris, Me.
Franklin Motor Car Co., Portland, Me.
Forest City Garage, Portland, Me.
Franklin Sales Co., Lynn, Mass.
Foster-Smith Co., Providence, R. I.
Charles E. Fay Co., Boston, Mass.
Ford Motor Co., Boston, Mass.
Franklin Motor Car Co., Boston, Mass.
Fiat Motor Sales Co., Boston, Mass.
Frank Fuller, Athol, Mass.
H. S. Feindel, Lowell, Mass.
Harry Fosdick, Boston, Mass.
G. E. Fairfield, Keene, N. H.
W. E. Fellows, Somersworth, N. H.
E. J. Farnham, Patton, Me.
Ford & Lyon, Fitchburg, Mass.
W. J. Furbush, West Newton, Mass.
Forest Park Garage Co., Springfield, Mass.
Fitchburg Auto Co., Fitchburg, Mass.


The old way



The new way

A man should not do the work a machine will do for him

A merchant, with all his troubles, should never do the work that a machine does better and quicker.

Our newest model National Cash Register makes the records which a merchant needs to control his business. It does fifteen necessary things in three seconds.

Without the register a man cannot do these things in half an hour.

With the register, even a new clerk can do them just by pressing the keys.

Our new electric machines are as much better than old machines as an up-to-date harvester is ahead of a sickle for cutting grain.

The latest model National Cash Register is a great help to merchants and clerks.

It pays for itself out of what it saves.

Merchants need National Cash Registers now more than ever before

FILL OUT THE COUPON AND MAIL TODAY

Dept. 3604, The National Cash Register Company, Dayton, Ohio.

Please give me full particulars about the up-to-date N. C. R. System for my kind of business.

Name____________________

Business____________________

Address____________________

Falmouth Garage and Tire Co., Portland, Me.
Friendship Auto Station, Providence, R. I.
Foss-Hughes Co., Providence, R. I.
Gilson Auto Co., Portland, Me.
Greenfield Buick Co., Greenfield, Mass.
C. H. Gardt, Haverhill, Mass.
Gloucester Auto Sales Co., Gloucester, Mass.
James T. Galligan, Falmouth, Mass.
Frank Gould, Lawrence, Mass.
L. E. Gray, Concord, N. H.
W. B. Gilkey, Searsport, Me.
J. T. Gay, Waldoboro, Me.
Gorham & Son, Middlebury, Vt.
C. F. Greene & Sons, Lynn, Mass.
W. L. Gerhard, Athol, Mass.
Hastings Flint Co., Fitchburg, Mass.
Hyde Park Garage, Hyde Park, Mass.
Hyannis Garage, Hyannis, Mass.
Hartford Buick Co., Hartford, Conn.
Howard E. Hartman, Nashua, N. H.
Hoyt Electrical Instrument Works, Penacook, N. H.
Hanover St. Garage, Boston, Mass.
A. W. Horton, Portsmouth, N. H.
Hogan & Grant, Norwood, Mass.
Hancock Square Garage, Quincy, Mass.
A. T. Hart Co., Boston, Mass.
Hawley-Cowan Co., Boston, Mass.
Henshaw Motor Co., Boston, Mass.
Hinchcliffe Motor Co., Boston, Mass.
Henley-Kimball Co, Boston, Mass.
Holt & Hight, Skowegan, Me.
Howard Co., New Haven, Conn.
J. S. Harrington, Inc., Springfield, Mass.
Haggett Garage Co., Wiscasset, Me.
J. J. Hughes, Wakefield, Mass.
William Hughes Co., Inc., Providence, R. I.
I. S. Miller, Marion, Mass.
Hovey & Co., Mars Hill, Me
Holman's Garage, Portsmouth, N. H.
B. F. & A. W. Hopkins, Providence, R. I.
Hudson Motor Sales Co., Lewiston, Me.
T. Waldo Herrick, So. Duxbury, Mass.
Harry E. Hall, Watertown, Mass.
W. C. Howe, Camden, Me.
Herrick Bros. Co., Bethel, Me.
Iver-Johnson Sporting Goods Co., Fitchburg, Mass.
Jeffrey Motor Co., North Anson, Me.
Jordan & York, Portland, Me.
F. L. Johnson, Concord, N. H.
Jordan Auto Co., Willimantic, Conn.
John L. Judd, Boston, Mass.
Jackson Motor Car Co., Boston, Mass.
Arthur A. Jenkins, Milford, Mass.
J. Lee Johnson, Hardwick, Vt.
R. W. Jamieson, Camden, Me.
King Motors, Inc., Boston, Mass.
O. F. Kress & Son, Lawrence, Mass.
H. F. Kaler, Scarboro, Me.
Clinton H. Kenyon, New London, Conn.
H. G. Keene, Kittery Pt., Me.
Lowell-Buick, Lowell, Mass.
Lewiston-Buick, Lewiston, Me.
T. H. H. Lathrop, New London, Conn.
James Lehan, Stoughton, Mass.
L. B. Lorimer Co., Providence, R. I.
P. M. Lawrence, Augusta, Me.
Linscott Motor Co., Boston, Mass.
Locomobile Co. of America, Boston, Mass.
George H. Lowe, Boston, Mass.
Roy Lockwood, Stamford, Conn.
Laline & Partridge, Inc., Boston, Mass.
Herbert C. Lintott, Nashua, N. H.
Lawrence Motor Truck Co., Lawrence, Mass.
Lehan Motor Co., Ware, Mass.
Harry L. Lowell, Westbrooke, Me.
W. C. Landon & Co., Rutland, Vt.
Levasseur Motor Car Co., Lewiston, Me.
Clifford A. Lowd, Portsmouth, N. H.
F. N. Leverin, Tilton, N. H.
W. C. Lindsay, Newport, Vt.
Roy E. Litchfield, Hingham, Mass.
George H. Lapper, Norwood, Mass.
J. A. Lester Co., Portland, Me.
Lewis Garage Co., Boothbay Harbor, Me.
George B. Lawrence, Boston, Mass.
Miles B. Mank Motor Car Co., Portland, Me.
Maykel Auto Co, Worcester, Mass.
W. C. Master, Vineyard Haven, Mass.
Monto Cristo Garage, New London, Conn.
Manchester Buick, Manchester, N. H.
Myerscough & Buchan, Andover, Mass.
Malden Center Garage, Inc., Malden, Mass.
Martin & Supple, Franklin, Mass.
Alfred Cutler Morse & Co., Boston, Mass.
J. H. MacAlman, Boston, Mass.
Mitchell-Lucas Motor Co., Boston, Mass.
J. W. Maguire Co., Boston, Mass.
Mystic Auto Co., New Haven, Conn.
John C. Morgan, Cambridge, Mass.
Mercer Bros. Garage, Nashua, N. H.
Mohawk Garage Co., N. Adams, Mass.
Maxim Motor Co., Middleboro, Mass.
William Marshall, N. Bennington, Vt.
Madison Motor Co., Madison, Me.
Peter J. McShane, Dover, N. H.
Mack Motor Truck Co., Cambridge, Mass.
Charles A. Marcy, Colrain, Mass.
Metcalf Auto Co., Farmington, Me.
George Mac Bride & Co., Inc., Boston, Mass.
Motor Sales Co., Portland, Me.
D. E. McCann's Sons, Portland, Me.
Irving E. McCurdy, Thornton, R. I.
Milford Buick Co., Milford, N. H.
Magna Auto Co., Holyoke, Mass.
Manchester Auto Garage, Manchester, N. H.
Neil E. Newman Co., Bangor, Me.
H. K. Noyes, Boston, Mass.
Norwood Buick Co., Norwood, Mass.
Nantasket Auto Co., Middleboro, Mass.
Natick Garage, Natick, Mass.
Nickerson Bros., Brockton, Mass.
Northampton Garage Co., Northampton, Mass.
Newburyport Garage Co., Newburyport, Mass.
Newton Garage and Automobile Co., Newton, Mass.
R. H. Nesbitt, Somerville, Mass.
T. F. Nichols, Taunton, Mass.
Norcross Cameron Co., Springfield, Mass.
E. W. Nash, Damariscotta, Me.
Newton & Goodwin, Rumford, Me.
F. A. Nickerson, Portland, Me.
J. E. Newton Co., Fall River, Mass.
Norwood Auto Station, Norwood, Mass.
Oxford Garage, Lynn, Mass.
Oakland Motor Car Co., Contoocook, N. H.
Oldsmobile Co. of R. I, Providence, R. I.
Owen Magnetic Car Co., Boston, Mass.
Oldsmobile Co. of N. E., Boston, Mass.
Oakland Motor Co., Boston, Mass.
Murrey O'Neil, New Bedford, Mass.
Orr Motor Co., Pittsfield, Mass.
John O'Donnell, Providence, R. I.
Oldsmobile Co. of Barre, Vt.
Harrington-Hudson Co., Hartford, Conn.
Portland Motor Sales Co., Portland, Me.
Park Garage Co., Bangor, Me.
Place Garage, Fall River, Mass.
Fred E. Peterson, Ft. Fairfield, Me.
Perry Motor Car Co., Lawrence, Mass.
Robert W. Powers, Fall River, Mass.
Plymouth Auto Sales Co., Plymouth, Mass.
The Portland Co., Portland, Me.
Peterson Motor Co., Portland, Me.
Portsmouth Motor Mart, Portsmouth, N. H.
Plymouth Rock Garage, Plymouth, Mass.
Putnam Motor Car Co., Putnam, Conn.
Perkins & Corliss, Gloucester, Mass.
Paige-Detroit Co. of N. E, Boston, Mass.
Paige Motor Co. of Worcester, Mass.
W. H. Pembroke, Malden, Mass.
Packard Motor Car Co., Boston.
Phoenix Motor Co., Portsmouth, N. H.
Paige Motor Sales Co., Malden, Mass.
Piper-McIntire Co., Manchester, N. H.
C. L. Percy, Saco, Me.
Pollard Auto Co., Nashua, N. H.
E. H. Page, Fitchburg, Mass.
Geo. H. Phillips & Son, Taunton, Mass.
A. L. Philbrick, Melrose, Mass.
People's Garage, Bath, Me.
Pooler & Emery, Skowhegan, Me.
Frank E. Parsons, Skowhegan, Me.
Packard Motor Co. of Boston, Portland, Me.
John B. Quinn, Fall River, Mass.
Robinson-Techey Co., Lawrence, Mass.
Stephen Rochette, Lowell, Mass.
Riverside Garage, Haverhill, Mass.
James B. Robinson, Lawrence, Mass.
Rogers Garage, Hanover, N. H.
C. P. Rockwell, Inc., Boston.
W. L. Russell & Co., Boston.
Ripley & Fletcher, So. Paris, Me.
Reopell, A. V., Springfield, Mass.
Red Arrow Garage, Lawrence, Mass.
Reed Brothers, No. Cambridge, Mass.
Reo Springfield Co., Springfield, Mass.
Louis E. Roundy, Keene, N. H.
P. H. Reed, Ft. Fairfield, Me.
Reynolds & Shaw, Presque Isle, Me.
Robinson & Bennett, Keene, N. H.
Leland J. Ross, Danvers, Mass.
Reo Worcester Co., Worcester, Mass.
Robertson Motor Car Co., Taunton, Mass.
Rand Motor Co., Concord, N. H.
Rockland Garage Co., Rockland, Me.
Read Garage & Machine Co., Belfast, Me.
Rumford Garage, Rumford, Me.
Rand Motor Car Co., Concord, N. H.
Standard Tire and Auto Co., New Britain, Conn.
Smith Garage Co., Fair Haven, Vt.
W. E. Soule Co., Portland, Me.
Sawyer Motor Co., Bangor, Me.
Charles E. Sileby, St. Johnsbury, Vt.
Sisson & Co., Pittsfield, Mass.
Smith Motor Car Co., Lawrence, Mass.
Springfield Buick Co., Springfield, Mass.
Stoughton Garage, Whitfield, N. H.
A. H. Spear, Jr., Portland, Me.
Shaw Auto Co., Bath, Me.
L. W. Short, Short's Garage, Taunton, Mass.
Standard Garage Co., New London, Conn.
B. G. Smith & Sons Co., Boston, Mass.
Fred S. Smith Co., Boston, Mass.
Sylvester & Carson, Quincy, Mass.
W. C. Sills, Boston, Mass.
R. Seavoy, Derry, N. H.
Somerset Auto Co., Fall River, Mass.
Soucy-Gagnon, Nashua, N. H.
John T. Sharkey, Taunton, Mass.
Signal Motor Truck of N. E., Boston, Mass.
I. L. Simes, Winchester, Mass.
George D. Sansos, Burlington, Vt.
Harry K. Smith, Springfield, Mass.
Smith Auto Sales Co., Lebanon, N. H.
John P. Sutton Co., Lewiston, Me.
Smith & McCarthy, Pittsfield, Mass.
Smith Bros. Garage, Inc., Malden, Mass.
Joseph Sacco, Portsmouth, N. H.
H. S. Sears, Hyannis, Mass.
Stoddard Motor Car Co., Springfield, Mass.
Stewart Auto Corp., Boston, Mass.
Stratton Garage, Inc., Malden, Mass.
Springfield Automobile Co., Springfield, Mass.
Springfield Auto Headquarters, Springfield, Mass.
W. J. Shaw, Pittsfield, Mass.
Sawyer & Ray Motor Co, Bangor, Me.
J. M. Stephens, Rumford, Me.
Stutz Motor Sales Co., Hartford, Conn.
Townsend Motor Car Co., Beverly, Mass.
Teel Mfg. Co., Medford, Mass.
S. D. Thombs, Portland, Me.
Terry & Vialle, Inc., Concord, Mass.
B. S. Thomas, New Milford, Conn.
Turrellis Garage, Waterbury, Conn.
LeRoy E. Tarr & Son, Lewiston, Me.
F. G. Thompson, Hartland, Me.
Tremont St. Garage, New Bedford, Mass.
W. G. Tenney, Arlington, Mass.
T. H. Toohey, Arlington, Mass.
Tremblay-Hathaway, Inc., Springfield, Mass.
P. H. Thomas, Camden, Me.
Twin State Chalmers Sales Co., Keene, N. H.
Uxbridge Auto Co., Uxbridge, Mass.
Utterback-Gleason Co., Inc., Boston, Mass.
F. H. Van Blaeron, Inc., Lynn, Mass.
Vialle Motor Co., Framingham, Mass.
H. B. Vesper, Rockland, Mass.
N. E. Velie Co., Boston, Mass.
Western Massachusetts Cadillac Co., Springfield, Mass.
E. E. Wentworth Corp., Portland, Me.
Hiram E. Wever, Portsmouth, N. H.
A. J. Wills, Lawrence, Mass.
C. S. Whitten & Co., Lynn, Mass.
A. S. Wetherell, Jr., Exeter, N. H.
Worcester Buick Co., Worcester, Mass.
Wade & Deaton Motor Car Co., Lewiston, Me.
Williston & Rafter, Lowell, Mass.
George E. White, Lowell, Mass.
Windsor Auto Co., Windsor, Vt.
H. S. Waite Co., Boston, Mass.
The White Co., Boston, Mass.
The Winton Co., Boston, Mass.
F. E. Wing Motor Car Co., Boston, Mass.
White Motors Co., New Haven, Conn.
Wollaston Center Garage Co., Quincy, Mass.
White Bay Garage, New Haven, Conn.
Howard L. White, Taunton, Mass.
Welden Garage, Inc., Greenfield, Mass.
Witch City Auto Co., Salem, Mass.
H. E. Weegar, Lewiston, Me.
Welegan Motor Car Co., Springfield, Mass.
Walton & Stevens, Inc., Newburyport, Mass.
F. E. Walker, Norway, Me.
Wamsoit Garage Co., Lowell, Mass.
Yates Garage, Ayer, Mass.

Time to Re-tire?
(BUY FISK)

There is not a city or village in the United States that is not reached in some way by this year's FISK TIRE advertising—the magazine, farm paper and newspaper campaign extends to every community where high class publications are read. It is reasonable to believe that every tire buyer in the country sees FISK Advertising.

Are you taking advantage of these profit possibilities?

Exposition of Trucks, Tractors and Accessories

Great War Time Farm Efficiency Demonstration Will Be Held In Chicago During Week of September 14-21

The national exposition of trucks, tractors and accessories at the Municipal Pier, Chicago, is going to be a great war time, farm efficiency demonstration. The exposition will last a week, Sept. 14 to 21.

The first and second days, Saturday and Sunday, will be "curiosity seekers' days." Monday and Tuesday the hardware men of the country will attend the convention, because hardware dealers everywhere are getting in line to handle automobile accessories, and parts for trucks and tractors—and some of them are already agents for this machinery—along with their regular lines of hardware.

Wednesday will be Illinois day, when farmers from the state will have the right of way to all parts of the magnificent pier—that is to all parts except the quarters of the United States navy training school for ensigns.

And Thursday and Friday the threshermen of Illinois, Wisconsin, Iowa, Indiana and Ohio will hold a convention in the auditorium, nearly a mile from shore, as guests of the exposition committee.

There are more exhibitors already signed up for this great exposition than the total number at the 1917 show, which was held in the Coliseum, and there are still more than a month left before the show opens. Manager Buelow believes that before that time there will be twice as many exhibitors. It is also interesting to know that the space already contracted for is so much greater than the total floor space of the famous Coliseum that the Coliseum would seem small if set down in the area reserved for the Automotive and Accessories Exposition, Inc., which is the official name of this national exhibition.

An enthusiastic meeting was held a few days ago at the pier in preparation for the opening of the exposition, and many men prominent in various phases of farm improvement delivered inspiring talks. One of the most interesting statements was that of C. C. Parlin of Philadelphia, formerly principal of the Waupaca, Wis., high school, who said that contrary to general opinion there were more horses in the United States in 1917 than ever before, the United States government estimating the total number at 25,000,000.

William G. Edens, president of the Illinois Highway Improvement Association, explained the plans to "lift Illinois out of the mud," by voting for a $60,000,000 bond issue at the next fall election. Not one cent of this money is to be spent until after the war.

Hugh McVey of Topeka, Kan., predicted that the truck, tractor and accessory exposition would prove as great a factor in helping to win the war as did the harvester, which appeared in Chicago and went from Chicago to the adjoining states at a time when the Civil War made it vitally important to raise and harvest more wheat with fewer men in the grain fields. Illustrating the importance of improved farm machinery, Mr. McVey pointed out that in Nebraska the value of the farm products has increased in the last 20 years from $100-000,000 to $900,000,000—nine times as much on very nearly the same acreage.

E. E. Parkinson of Madison, Wis., told how the threshermen, loyal to the core, are putting their outfits in the best possible condition for the threshing season. They have lost many trained men, but their determination is splendid, said he. This exposition is an opportunity to render a big service to the people of America by showing what modern methods can do to save man power.

The Municipal Pier, where the exposition is to be held, is just off the "loop" and street cars run clear to the end. It is also reached by harbor excursion boats, which connect it with Lincoln Park to the north and Jackson Park to the south.

That the exposition will prove the greatest war time exhibition in the history of the world is indicated by the flood of applications for space.

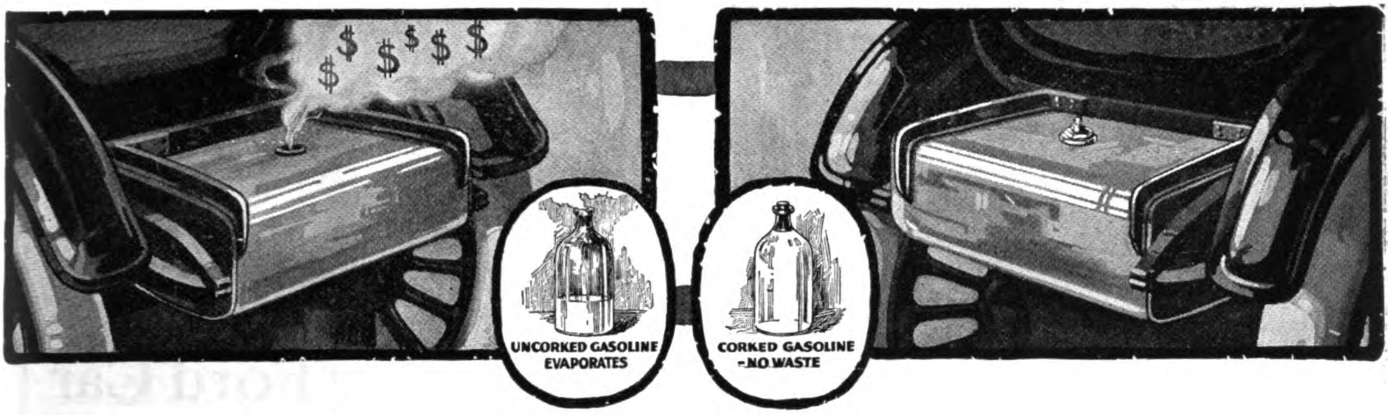
Up to July 10 there had been almost 100 different applications for space and many of the best known manufacturers have taken not one, but three or four exhibition spaces on the pier for this great show. Since July 10 the daily list of new exhibitors has broken all records according to H. W. Buelow, general manager of the exhibition, and this September demonstration of what American ingenuity has done to increase farm power, improve transportation and to make old automobiles take the place of new, will prove a revelation.

The first exhibitors to take space in the order of their arrival are:

Arrow Grip Manufacturing Co., Glenn Falls, N. Y.; Clark Publishing Co., Madison, Wis.; Carborundum Co., Niagara Falls, N. Y.; Fordowner, Milwaukee, Wis.; Motor Vehicle Publishing Co., New York, N. Y.; Essenkay Products Co., Chicago, Ill.; A. W. Shaw Co., Chicago, Ill.; System on the Farm, Chicago, Ill.; Twin City Varnish Co., St. Paul, Minn.; H. G. Paro Co., Chicago, Ill.; E. Kern Bros. Mfg. Co., Flandreau, S. D.; Automotive Accessories Co., Baltimore, Md.; Perfex Radiator Co., Racine, Wis.; New Lite Lens Co., Chicago, Ill.; U. S. Auto Supply Co., Chicago, Ill.; Brown & Caine, Inc., Chicago, Ill.; Metal Specialties Mfg. Co., Chicago, Ill.; Geo. D. Bailey Co., Chicago, Ill.; Jefferson Electric Mfg. Co., Chicago, Ill.; Atlas Specialty Mfg. Co., Chicago, Ill.; The Reliance Co., Chicago, Ill.; Harry Newman, Chicago, Ill.; Advance Accessories Corp., Chicago, Ill.; Bailey Non Stall Differential Corp., Chicago, Ill.; The Zinke Co., Chicago, Ill.; Milwaukee Auto Engine and Supply Co., Milwaukee, Wis.; Shurnuff Mfg. Co., St. Louis, Mo.; Romort Mfg. Co., Oakfield, Wis.; Champ Spring Co., St. Louis, Mo.; Standard Underground Cable Co., Pittsburgh, Pa.; Metal Ware Corp., Chicago, Ill.; Burgess Mfg. Co., St. Joseph, Mich.; Blake Mfg. Co., South Bend, Ind.; Challoner Co., Oshkosh, Wis.; Cooper Auto Specialty Co., Thomasville, Ga.; Motor Car Equipment Co., New York, N. Y.; The Duplex Engine Governor Co., Brooklyn, N. Y.; Van Cleef Bros., Chicago, Ill.; Edelman & Co., Chicago, Ill.; Cummings Foster Corp., Chicago, Ill.; Perry Auto Lock, Chicago ,Ill.; Defender Auto Lock, Detroit, Mich.; McIntyre Mfg. Co., Chicago, Ill.; The Dayton Wire Wheel Co., Dayton, O.; W. D. Sullivan, Chicago, Ill.; Dole Valve Co., Chicago, Ill.; Empire Auto Specialty Co., Chicago, Ill.; Koupet Auto Top Co., Belleville, Ill.; Heinzelman Bros. Co., Belleville, Ill.; Presto Cloth Mfg. Co., Toledo, O.; Wood Hydraulc Hoist Body Co., Chicago, Ill.; A. A. Lawder Sons Co., Chicago, Ill.; The Wyman Sales Co., Chicago, Ill.; Balso Oil Co., Toledo O.; Balso Oil Co., Council Bluff, Ia.; Agrimotor, Chicago, Ill.; Falls Motor Corp., Sheboygan Falls, Wis.; Buller Coupler Sales Co., Madison, Wis.; Orange Judd Co., Chicago, Ill.; White Star Refining Co., Detroit, Mich.; American Manganese Steel Co., Chicago, Ill.; La Crosse Tractor Co., La Crosse, Wis.; Hooven Radiator Co., Chicago, Ill.; Electric Steel Truss Wheel Co., Kankakee, Ill.; Guaranteed Tractor Corp., Chicago, Ill.; One Wheel Truck Co., St. Louis, Mo.; Traffic Motor Truck Corp., St. Louis, Mo.; Winther Motor Truck Co., Winthrop Harbor, Ill.; Hudford Co., Chicago, Ill.; Mechanical Belt Co., St. Joseph, Mo.; K & D Lamp Co., Cincinnati, O.; New Era Specialty Co., Grand Rapids, Mich.; Eclipse Valve Grinder Co., Kansas City, Mo.; Link Belt Co., Chicago, Ill.; Harding & Co., Chicago, Ill.; Anderson Electric Specialty Co., Chicago, Ill.; Atlas Auto Supply Co., Chicago, Ill.; N. A. Petry Co., Philadelphia, Pa.; Reflex Ignition Co., Cleveland, O.; Gray-Heath Co., Chicago, Ill.; Nilson Tractor Co., Minneapolis, Minn.; Hoosier Auto Parts Co., Muncie, Ind.; A B & B Specialty Co., Milwaukee, Wis.; Milwaukee Forge and Machinery Co., Milwaukee, Wis.; Higgins Spring and Axle Co., Racine, Wis.; S K F Ball Bearing Co., Hartford, Conn.; Forschler Motor Truck Mfg. Co., New Orleans, La.; Sumter Division, Splitdorf Electric Co., Chicago, Ill.; Commercial Truckmobile Co., Chicago, Ill.

The products of the following companies will be exhibited by the Gray-Heath Co.

L. P. Halladay Co., Streator, Ill.; New York Coil Co., New York, N. Y.; A. C. Savidge Co., Indianapolis, Ind.; Cuno Engineering Corp., Meriden, Conn.; Cole Gasoline Gauge Co., Chicago, Ill.; Wright Roller Bearing Co., Philadelphia, Pa.; Newtone Horn Co., Brooklyn, N. Y.; "X" Laboratories, Boston, Mass.; Hudson Motor Specialty Co., Philadelphia, Pa.; Jas. P. Neerup Co., Chicago, Ill.; F. W. Oettinger Co., New York, N. Y.; Lockfast Tire Carrier Co., Cleveland, O.; Standard Speedometer Co., Boston, Mass.; General Appliance Co., Boston, Mass.; Hansen Manufacturing Co., Cleveland, O.; Gibraltar Jack Co., New York, N. Y.; Bell Manufacturing Co., Detroit, Mich.; Continental Piston Ring Co., Memphis, Tenn.; A. E. White Machine Works, Eau Claire, Wis.; Harris & Reed Co., Chicago, Ill.; Barcolo Manufacturing Co., Buffalo, N. Y.; Friden Manufacturing Co., San Diego, Cal.

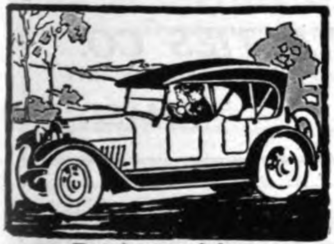


Don't Leave Your Fuel Tank Uncorked!

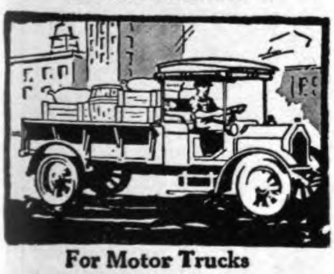
5% to 15% of Your Gasoline Escapes Through the Tank Vent Hole

BY evaporation and splashage *through the vent hole* of the gasoline tank on your automobile, truck, tractor, stationary engine or motor boat, one gallon of gasoline out of every twenty is wasted. This loss totals 200,000 gallons daily, or more than enough to supply one-fifth of all the Government's daily war needs.

The actual waste of gasoline thus lost has been definitely ascertained by rigid, conclusive tests. both in the laboratory and on the road. Read the statements below of tests made at the Armour Institute of Technology and the Associated Engineering Laboratories. The results prove that gasoline losses through the tank vent holes can be stopped with an



For Automobiles



For Motor Trucks

For Motor Boats

For Tractors

Imperial Gas-Tank Seal

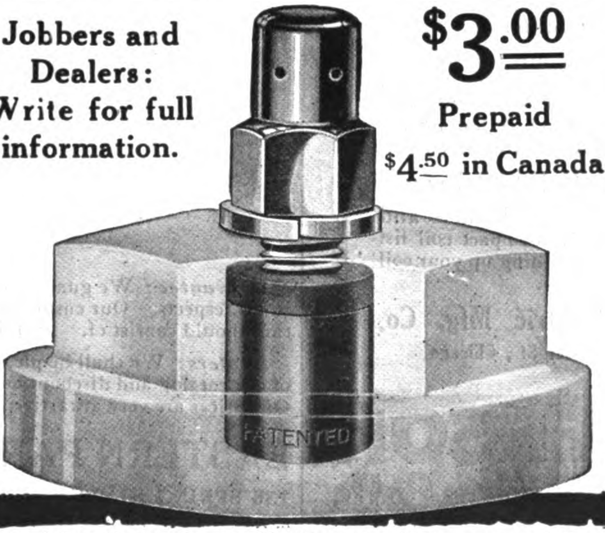
You can stop your share of this waste — help conserve the national supply of gasoline, reduce your fuel bills from $12 to $40 a year, and increase your mileage—by equipping your car with the Imperial Gas-Tank Seal. This most practical device is easily installed — simply bore a $\frac{3}{8}$-inch hole in the filler cap. It cannot get out of order, and works equally well with Gravity or Vacuum systems. The valve admits air automatically, to replace gasoline used through the carburetor.

Send $3 for the Imperial Gas-Tank Seal. When ordering, state whether it is for Gravity or Vacuum Feed System. We shall be pleased to mail you our Free Pamphlet, "Where the Gasoline Goes", on request.

THE IMPERIAL BRASS MFG. CO.
517 S. RACINE AVE. CHICAGO

Jobbers and Dealers: Write for full information.

$3.00 Prepaid
$4.50 in Canada



WHAT TESTS PROVED

On the Road

Imperial Brass Mfg. Co., Chicago.

We hand you herewith our report on road test made of the Imperial Gas-Tank Seal.

This test, in which a standard make of car was used, continued for a period of 25 days.

The car was first run over a 900 mile route without the Imperial Gas-Tank Seal and then run over the same route with the Imperial Gas-Tank Seal installed on the tank. On both trips the operating conditions were as nearly identical as possible.

The test clearly demonstrated the fact that where the Gas-Tank Seal was not used, the loss through the vent hole of the tank was 15$\frac{7}{10}$% of the total volume of gasoline used, and on the trip with the Imperial Gas-Tank Seal installed, this loss was entirely eliminated.

Associated Engineering Laboratory
By L. J. Chase
Principal Asst. Engineer.

In the Laboratory

Imperial Brass Mfg. Co., Chicago.

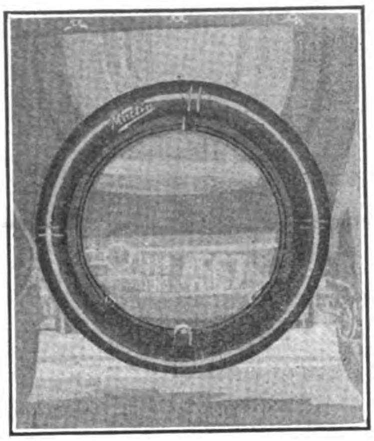
Under separate cover please find detailed report on Laboratory test made of the Imperial Gas-Tank Seal.

You will note that the aggregate wastage of gasoline, through the vent hole of the tank, due to evaporation, expansion and splashing, is 5% of the total volume of gasoline used in the tank. Our test not only definitely established this volume of loss but conclusively proved that the use of Imperial Gas-Tank Seal entirely eliminates wastage.

John J. Schommer
Professor in Chemical Engineering Office and Laboratories.
Armour Institute of Technology.

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.
Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts.
The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

MOSCO

Timer For Ford Car

Extra heavy pressed steel shell, aluminum finish. Insulating ring of gray bone fibre.

Terminals insulated all the way through. One-hand, self-closing oiler. Pressed steel arm and compression spring on brush assembly. Brush assembly sold separately. Interesting prices. Immediate delivery.

MOTOR SPECIALTIES CO.
MANUFACTURERS
WALTHAM MASS.

Big, Steady Profits in Ignition Coil Replacements

A Few Flexible Types Fit All Cars

GET *your full share* of battery ignition coil replacement business. Give every customer *instant service.* You don't need a big, varied, costly and ever-changing stock of coils.

Just a small stock of Jefferson Coils prepares you for every emergency. Jefferson Coils, consisting of only a few types, fit all makes and models of battery-equipped cars. Flexible caps, terminals and brackets make these coils adaptable for wide use.

Jefferson Coils are of highest quality. Reliable—long-lasting. Even with battery at lowest ebb, they will unfailingly produce hot, intense spark for starting. Fully guaranteed.

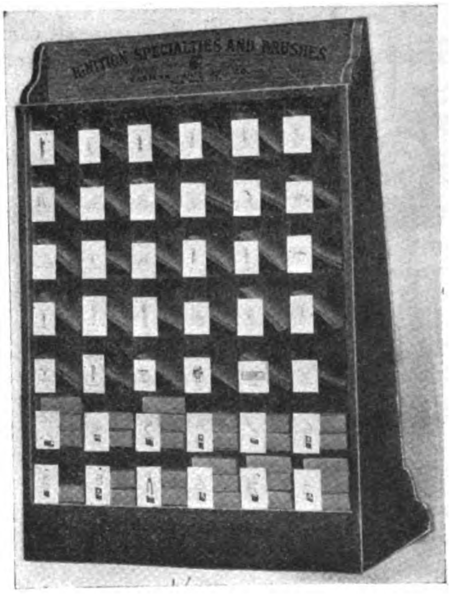
Valuable Coil List Free

Write today for full facts and folder with handy, compact coil list that will aid in building up your coil sales. Sent free.

Jefferson Electric Mfg. Co.
429 So. Green St., Chicago

JEFFERSON
Battery Ignition Coils

DISPLAY CABINET FREE



THIS convenient Cabinet is furnished FREE to all purchasers of an Assortment of our parts.

We are manufacturers of a *Complete Line* of coil, magneto, starting and lighting contact parts in both tungsten and platinum, as well as a complete line of metal and graphite brushes.

Quality: We do not supply any alloys in any of our points but furnish to our customers either Pure Tungsten or Pure Platinum 15% iridium.

Guarantee: We guarantee our product to be absolutely perfect in all respects. Our customers are the sole judges of what satisfaction should consist of. Each item is packed in an envelope.

Dealers: We shall be pleased to hear from you requesting a copy of our catalog and discount as well as to obtaining a cabinet FREE. Our prices are very attractive. Write to Dept. B.

EASTERN PARTS MFG. CO., INC.
136 SPRING STREET, NEW YORK CITY.

Would You Run Your Car With the Brakes Dragging? Certainly Not.

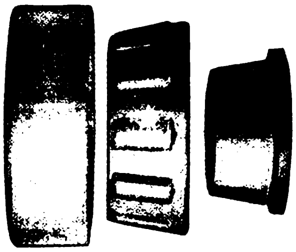
Yet most roller bearings have a brake which prevents the rolls from turning freely, naturally causing friction. This useless part is called a "cage" and is used to hold the rolls in position. Beside the braking action on the rolls it takes up room in the bearing.

The Wright Taper Roller Bearing is the only taper roller bearing which does not have this unnecessary and troublesome part. Its design is fundamentally correct, making this cage unnecessary, and in the space gained by its removal are used more rolls, increasing its capacity nearly 50 per cent. over other roller bearings of the same size and adding thousands of miles to its wear-resisting capacity.

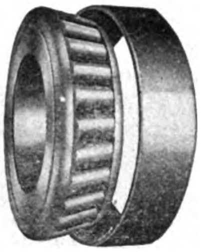
The rolls support the load and reduce the wear. The more rolls, the less wear on each and the less weight each has to carry.

Look at the cuts and the diagram, then ask your dealer to show you the only "cageless" taper roller bearing made for Fords.

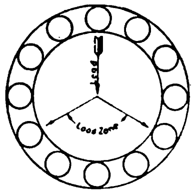
Dealers: Ask your Jobber or write us.



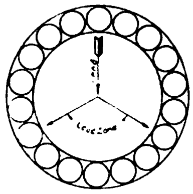
Average Type.
Note the cage (center of cut) and *count* the rolls.



Wright Type.
Note absence of "cage." *Count* the rolls.



VARIOUS TYPES
(AVERAGE NUMBER OF ROLLS, 12)



WRIGHT TYPE EXCLUSIVELY
(AVERAGE NUMBER OF ROLLS, 18)

NATIONAL BEARINGS SERVICE CO.

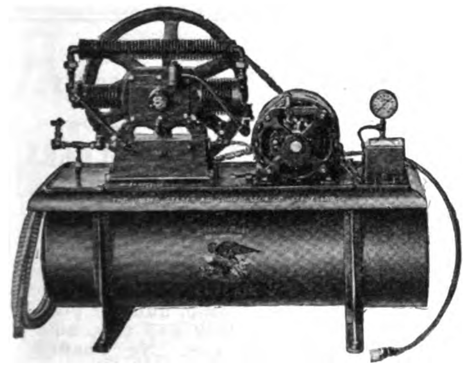
WRIGHT TAPER ROLLER BEARINGS

Replacements for all Standard types of Bearings

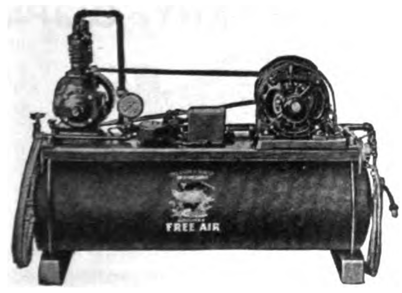
1412 Girard Ave., Philadelphia.

18 West 62nd St., New York.

Price, $10.00 per set
(4 Bearings)
In Canada, $15.00
Fits Chevrolet 490 Also



This is the U. S. DeLuxe Automatic Air Compressor, leader of the Two Stage line, which comprises 17 numbers, with capacities from 4 to 21 cubic feet per minute.



This is the U. S. D. 22, Automatic Air Compressor, leader of the Single Stage line, comprising 4 numbers, with capacities from 1½ to 21 cubic feet per minute.

MACHINES OF MANY FEATURES

EVERY United States Air Compressor is equipped with an efficient device to separate oil from the air and with thousands of machines in constant use for many years we have not received a single complaint from this source. We believe the least a purchaser can expect is a machine that will deliver air free from oil and because of this fact, we do not consider it a matter worthy of extensive exploitation.

The United States Air Compressor was the first machine to contain Patented Automatic Unloading Device, which eliminates the need of starting a motor against pressure and thereby avoids the cause of burned out motors and the attending trouble.

Any unit of the 21 comprising the United States line contains more refinements and improvements than any similar machine.

We ask prospective purchasers to examine U. S. machines from every possible angle and to compare them point for point, with others. We ask you to buy them only when you are convinced they contain more points of merit than you can obtain in others. In buying air compressors, don't be misled by a comparatively unimportant argument, but go "beneath the surface" as a mechanic, and demand quality for your money.

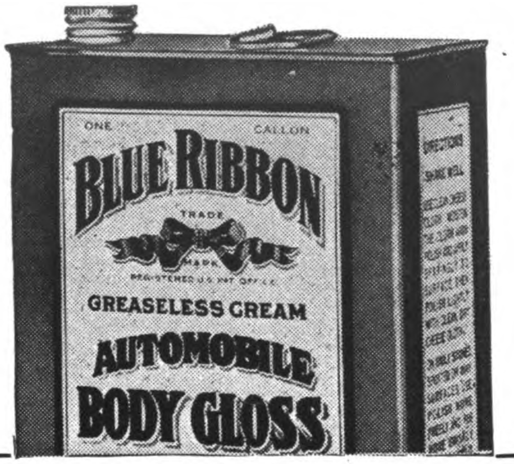
The U. S. catalogue describing both Two Stage and Single Stage compressors in detail will be sent upon request. Send for it today.

TEAR OUT AND MAIL

Send catalog as advertised in Accessory and Garage Journal to address written in the margin.

The United States Air Compressor Co.

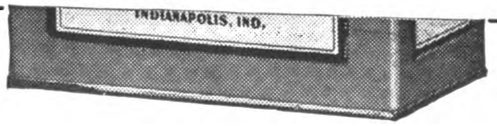
6538 Carnegie Avenue, Cleveland, Ohio.



KEEPS THE BODY
OF YOUR CAR
Shining
LIKE A MIRROR

No Grease to Catch Dust
Does Not Coat the Finish
Best Furniture Polish Made
Use With Spray if Desired

International Metal Polish Co.
INDIANAPOLIS, INDIANA



DETROIT BATTERIES

For every make and model of motor car carrying an electric starting system. Replacements on cars no longer manufactured can be had promptly.

Detroit Battery Co.
Detroit, U. S. A.

CHASE *Leatherwove* "To be like the hide in most respects In some respects be better"

CHASE MOHAIR VELVETS FOR UPHOLSTERY

CHASE DREDNAUT Motor Topping

CHASE PLUSH AND WOOL MOTOR ROBES

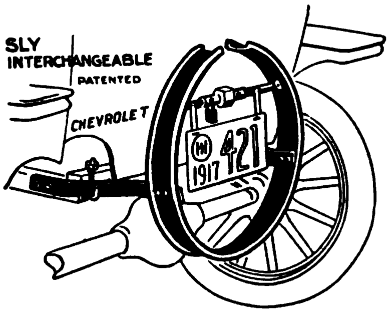
Familiarize yourself with Chase Products.

The choicest of upholstery fabrics for motor cars, Leatherwove or Mohair Velvets.

Wonderful robes for the Motorists.

L. C. CHASE CO.
BOSTON

New York San Francisco Detroit Chicago

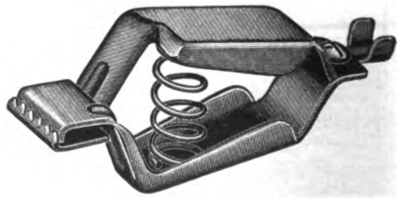


SLY
Interchangeable and Cradle Type
TIRE HOLDERS

Interchangeables quickly adjustable for all Ford and Chevrolet tires and demountable rims. Combines place for lamp, number plate, lock and tire, holding by expansion grip on inside of tire. No chafing. Clamps to Ford or Chevrolet frame without drilling or bolting. At all jobbers, or write

New Era Spring & Specialty Co.
1177 Hamilton Av. Grand Rapids, Mich.

UNIVERSAL BATTERY CLIPS



Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals. No. 21-A—lead plated—1⅛" spread of jaws.
Sample mailed postpaid for 15c in stamps.
Single Lots, Each 20c. Lots of 10, Each 15c.
Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.

Bean Valve Refacing & Reseating Tools

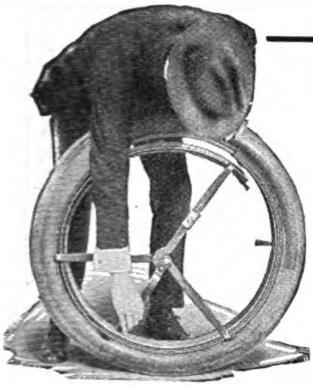
Sizes for all makes of automobiles. *Specials* for *Fords* and *Maxwells.*

Complete outfits for garages.

Fig. 12

Write for prices.

Bean Tool & Sales Co., Berea, Ohio



REMOVE *ANY* RIM
with the
"Lawco" Rim Tool
(Patents Pending)

Do in a minute what now takes an hour without injury to rim, tire, or valve stem. Use the "Lawco" Rim Tool. Closes compactly. Weighs 5½ pounds. Only $3.50.

Dealers write for proposition

Dept. G. THE F. H. LAWSON CO., Cincinnati, Ohio

PLUG READY TO EXPAND
SPECIAL POINTS
(FOR QUICK ASSEMBLY)

SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

16 lbs. Assorted Springs	$2.00
25 lbs. Assorted Cotters	5.00

Subject to Market Changes.
Send for Catalogue.

Welch Patent Expansion Plug.
For Closing Core Holes.
M. K. HUBBARD SPRING CO., Pontiac, Mich.

Real Harvey Service
RACINE

Speed in delivery, quality in materials, dependability in performance, accuracy in fit—these are the things which will win for you the loyalty and friendship of your customers—these are the things which combine to make Harvey Service predominant in the motor trade.

There's A Harvey Jobber Near You

Drop us a card and we will send you his name and our Spring Book giving complete weights, styles, measurements and prices of over 900 different kinds of springs. Write today—you may need Harvey Help tomorrow.

Harvey Spring & Forging Co.
811 17th St., Racine, Wis.

DIXON'S
GRAPHITE GREASE
No. 677
FOR TRANSMISSIONS and DIFFERENTIALS
FIRST AWARD

Pin Your Faith on Dixon's

The lubricants that have proved their superiority in actual use and scientific demonstration. Don't be content with a camouflage coating that squeezes out quickly and leaves bearing surfaces at friction's mercy. Rely on

DIXON'S
GRAPHITE
Automobile
LUBRICANTS

they stay put — save wear, time and money.

Write for Dixon's Dealer's Deal No. 49-G.

Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

D X N TRADE MARK **ESTABLISHED 1827** D X N TRADE MARK

CARE AND REPAIR of TIRES

FREE

To Motorists!

Write for this wonderful tire book today. Learn how to get more tire mileage and better tire service. This book shows you. Explains how hot weather affects your tires and reduces tire mileage—how to overcome it. Tells of proper inflation for all seasons. Explains how to keep your spare casings and tubes from deteriorating. All these and a number of other tire questions answered.

Write for it A postcard brings "Care and Repair of Tires" to you free. No obligation. We want every motorist to have a copy. Write for yours today.

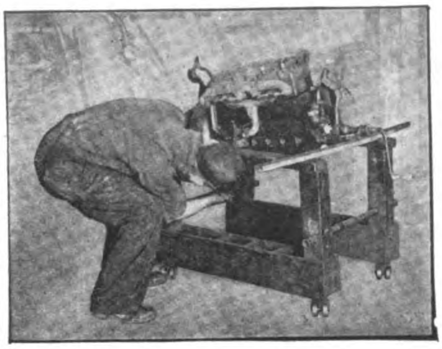
C. A. SHALER CO., 254 Fourth St., Waupun, Wis.
(Largest Manufacturers of Vulcanizers in the world)

The MANLEY GARAGE AND SHOP EQUIPMENT

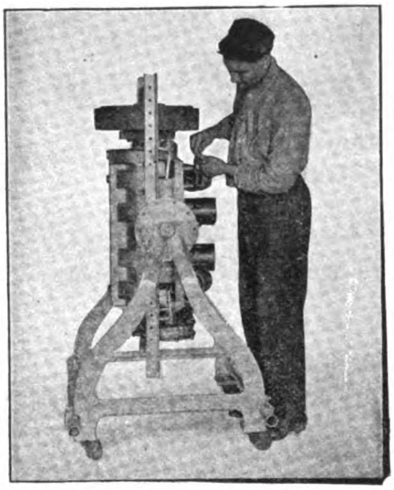
Every garageman and repairman should get our catalog. You'll find in it just the time and labor savers you need, and their prices will astonish you by their moderateness.

Send for your copy of this catalog today

THE UNITED ENGINE & MFG. CO.
Hanover, Pa.



THE OLD WAY
Expensive and Inefficient



THE CONTINENTAL WAY
Saves Time, Money and Labor

CONTINENTAL AUTO PARTS CO.
Continental
KNIGHTSTOWN, INDIANA U.S.A.

Would You Read Your Paper Upside-down?

Why ask your mechanics to stand on their heads to repair a motor?

—DON'T—

Install Continental Motor Stands Today

Catalogue on request

Push Your Business —

I'll Show You How to Increase Your Winter Trade.

THERE is business all around you. Good, profitable business that will bring in many an extra dollar. Don't wait for spring. Do business all winter. I'm helping garage men and supply dealers to do more business. I'll help you. Write on your business paper that you're ready for more business. I have nothing to sell but service backed by nine years' experience in promoting sales successfully.

Write
Edward W. Bacon
BACON SERVICE
151 Grand St., New York

King Safety Tail Light takes the fear out of night driving—

Equip your car with one NOW

For particulars write

KING-BULL MFG. CO.
123 E. Ontario St.
Chicago.

NEW DEPARTURE BALL BEARINGS

Strength
Stamina
Service

The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

B-W DIRECT CURRENT

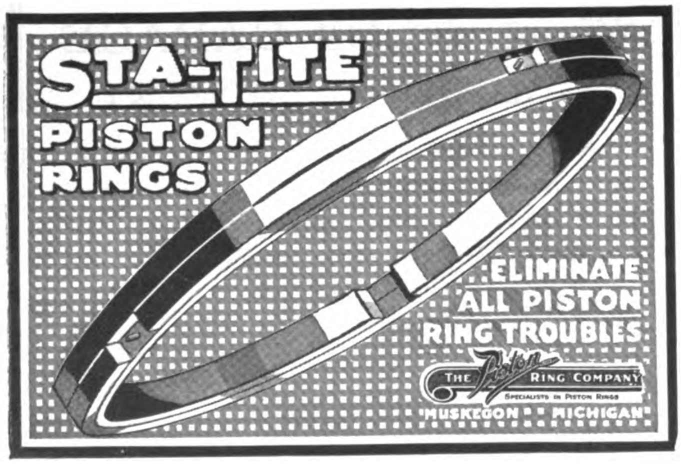
20 10 0 10 20
DISCHARGE
AMPERES
CHARGE
B-W MFG. CO.
ST. LOUIS, MO.

STURDILY CONSTRUCTED to retain accuracy under the most severe conditions. Handsome in appearance. Made in both flush and surface types. Finished in bright nickel or black rubberoid as desired.

Better Ammeters Cannot Be Purchased. PRICE.......$1.90

Send For Literature
Ballman-Whitten Mfg. Co.,
4440 Olive St. St. Louis, Mo

AMMETERS


STA-TITE
PISTON
RINGS
ELIMINATE
ALL PISTON
RING TROUBLES
THE Piston RING COMPANY
SPECIALISTS IN PISTON RINGS
MUSKEGON MICHIGAN

WM. B. SCAIFE & SONS CO.
PITTSBURGH, PA.
BRAZED
AIR TANK

SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

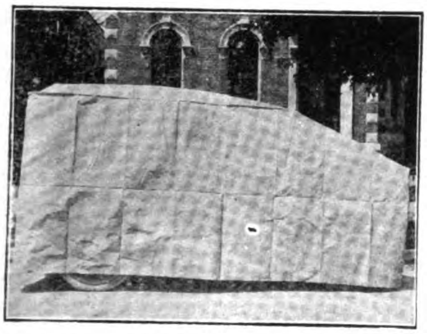
Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

Kennedy Auto Storage Covers

This is the time to prepare for STORAGE AUTO COVER business. Be ready. Put in a supply now so that when weather changes come and your customers store their cars, you will be in a position to meet the demand. They sell at the season when trade on other accessories is usually dull.

KENNEDY STORAGE AUTO COVERS are made from an especially strong paper, securely reinforced to prevent tearing, and completely cover the car. They protect the car from dirt, dust, cold and moisture. Quick changes in temperature have tendency to check the varnish; Kennedy Storage Auto Covers are a preventive of this.



Kennedy Storage Auto Covers also protect tires and preserve the life of the rubber by excluding the light, and are quickly and easily put on. These paper covers are cheaper than cloth and render better service. Dust and dirt will penetrate any cloth, but cannot get through paper.

Five-passenger car covers will cover the popular priced touring car and roadster with wheel base up to 120 inches. For larger cars the seven-passenger size is preferable. Ford covers are for cars with short wheel base. We also supply covers for electric cars.

We make a cover of lighter weight paper, and without the reinforcement, which gives good service where the cover is not expected to be used more than once. These covers sell at a very moderate price.

Estimate the sales and profits you make on these covers. It is the time to act. Your order will be given careful and prompt attention. Kennedy covers are standard and durable and the trade discount is liberal.

Jobbers and Dealers: Write for descriptive matter, prices and discounts.

The Kennedy Car-Liner & Bag Co.
Shelbyville, Indiana, U. S. A.

WAR—TIME THRIFT and RISING TIRE PRICES

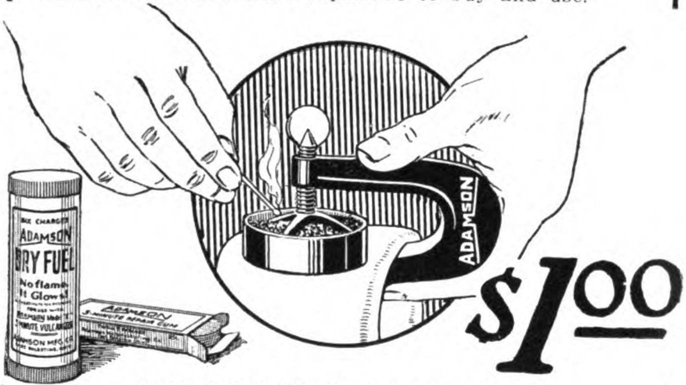
Mean more and more sales of

ADAMSON VULCANIZERS

The only Complete Line

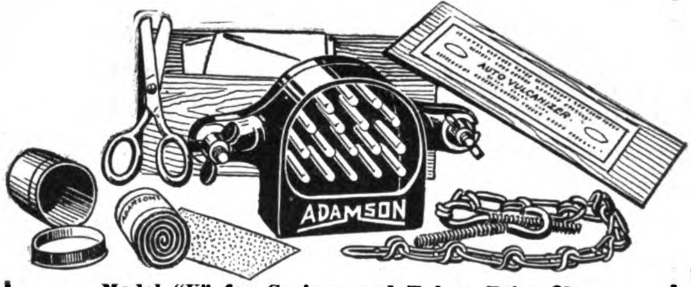
THIS YEAR motorists are learning as never before to keep their own tires and tubes repaired to yield the utmost mileage at the lowest possible cost. Patriotic Thrift and Economy demand this.

Adamson Vulcanizers best meet this demand **because:** there's an Adamson for every repair a motorist can make;—every model will use common gasoline, always easy to get and sure in its results;—they are so easily operated as to encourage their frequent use;—and finally, Adamsons are the least expensive to buy and use.



Model "E" 5-Minute Tube Vulcanizer.

REPAIR TUBE PUNCTURES
in five minutes, anywhere. Pour a measure of Adamson Dry Fuel into the Vulcanizer, touch a match, and the fuel burns with a hot glow—no flame—vulcanizing the patch permanently in five minutes. Use gasoline instead of Dry Fuel if desired. Extra can of Dry Fuel 50c; extra box of 12 patches 25c.



Model "U" for Casings and Tubes, Price $2.

KEEP CASINGS MENDED
by vulcanizing cuts in tread and side-wall; prevent moisture and dirt from getting into the fabric, rotting it and causing blowouts. Conserve tires for thousands of miles more service. Use while tire remains on wheel. Make also ordinary repairs on tubes.

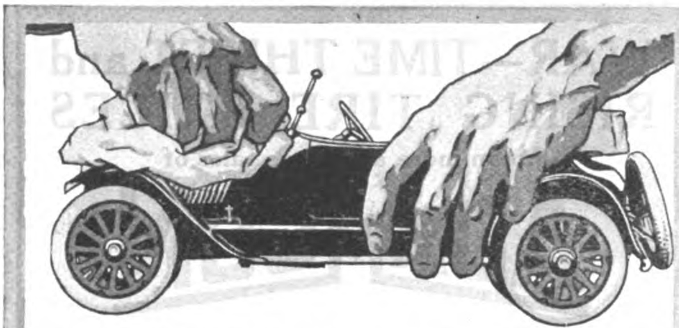
OTHER ADAMSON MODELS
include Model "T" for repairing inner tubes only, priced at $1.50; and Model "S" for private garage and repair shop use, vulcanizes repairs up to 12 inches, price $12. Adamson Repair Gum is a special compound for best results with any portable vulcanizer.

Sold by All Jobbers.

Write us today for catalog, store displays and copies of booklet "Repair and Care of Tires."

ADAMSON MFG. CO.
EAST PALESTINE, OHIO.

We also make Adamson Ford Brake Shoes, lined and unlined.



Watch the Clean-Up King Get Busy!

That's Zit!—clean-up king when it comes to making cars sparkle like new—clean-up king when it comes to fetching cash into the credit column.

Because Zit sells—big—easy—quick. Just get that hard and fast in your mind: *Zit sells!*

ZIT THE AUTOMOBILE DRY WASH

Once a man buys Zit, nothing else gets a look-in. Try it yourself, and you'll know why—'cause Zit is *right on the job*—simply knocks the spots out of old man Dirt and his brothers Dust and Grime!

Spray Zit on with the Westfield Junior Sprayer. Easy to do! Rub off with a cheesecloth—not only easy, but *clean*, and how that car will shine! *Try it.*

We want every dealer to know for himself how good Zit is—so he can tell his customers. So try it yourself!

Introductory Offer

If you'll order two dozen cans of Zit, we'll include an extra can *free*—which means extra profits, of course! Order today.

ZIT
THE AUTOMOBILE
DRY WASH
FOR CLEANING AND POLISHING AUTOMOBILES AND OTHER FINE FINISHES
WESTFIELD CHEMICAL CO.

WESTFIELD CHEMICAL COMPANY
Westfield, Mass.

ELECTRIC GLUE POT

Mabey's Dry
Heat Electric

Glue Pot

No flame; no soot or smoke. All danger of fire is eliminated

Capacity	Price without cover
1 qt.	$ 9.50
2 qts.	11.00
3 qts.	12.75
4 qts.	15.75

Century
Automobile Cigar Lighter, Complete $1.00 Each, F. O. B. Indianapolis.

DEALERS—Write For Prices.

MABEY'S ELECTRIC & MFG. CO.
968 Ft. Wayne Avenue INDIANAPOLIS, IND.

"MaxF"

A.X
TRADE MARK
Maximum Efficiency

Grinding Wheels

Are the Most Satisfactory for Garages and Motor Repair Shops

Order your grinding wheels trade marked "MaxF." If your jobber does not carry them, order direct from us.

Our valuable engineering service is free. We will advise you correctly on any grinding difficulties. Write at once for particulars.

"MaxF" Grinding Wheel Corp.
Chester, Mass.

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

Strengthen Your Advertising Literature

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

Ross-Gould
Mailing Lists **St. Louis**

BUNTING BEARING BRONZE
B.B.B.CO.

Bronze is Best

and "Bunting" is the Best of Bronze

Cored Bars

BUNTING BEARING BRONZE
IT'S STANDARD

Ask for Catalogue N.

The Bunting Brass & Bronze Co.
727 SPENCER STREET
TOLEDO, OHIO.

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3½
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15⅛
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20

Which Garage Man Gets the Money?

If you can repair and adjust Electrical Equipment, you will get the cream of the garage business. With the increasing demand for service of this sort, you must equip to handle the business, or lose it to your more enterprising competitor.

Model 280

Weston

GARAGE TESTING INSTRUMENT

is your one great and urgent necessity to enable you to locate electrical troubles quickly and apply the proper treatment to remedy them. Its possession will place you a long way ahead of your competitor not so equipped. This instrument is extremely accurate, durable and serviceable. It is the most practical electrical equipment you can install.

The Weston Company is pre-eminent throughout the world in the production of highest grade Electrical Precision Instruments.

WRITE US NOW for our Special Proposition to Garage Owners. It will show you how you can handle electrical apparatus intelligently and profitably.

WESTON ELECTRICAL INSTRUMENT CO., 103 Weston Ave., Newark, N. J.

23 Branch Offices in the Larger Cities

AUGLAIZE HOIST

LABOR SAVING

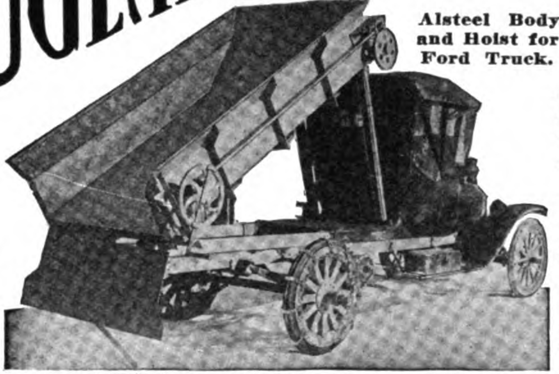
The Quadruple Worm Gear Easily Turns the Trick

A boy can raise 4 tons in three minutes with the Auglaize Hoist. Weighs less than any other and covered with a liberal guarantee. Built in sizes up to 5 tons. **Prices up to 1½ tons, $83.00; from 1½ to 5 tons, $109.00.**

AUGLAIZE ALSTEEL BODIES

Staunchly constructed of all steel and guaranteed against defective material and workmanship. Will carry 50% overload.

Prices range from $150.00 to $225.00, according to size.



Alsteel Body and Hoist for Ford Truck.

TIME SAVING

Auglaize Special Alsteel Body and Hoist for Ford Truck

Carrying capacity from 2700 to 3000 lbs. of gravel, sand, crushed stone or coal; approximate weight, 550 lbs.

Price, $187.50. Equipped with Auglaize Powerful, Speedy, Light-Weight Hoist.

Dealers allowed a liberal commission and given selling co-operation. Write at once for catalog and sales plans.

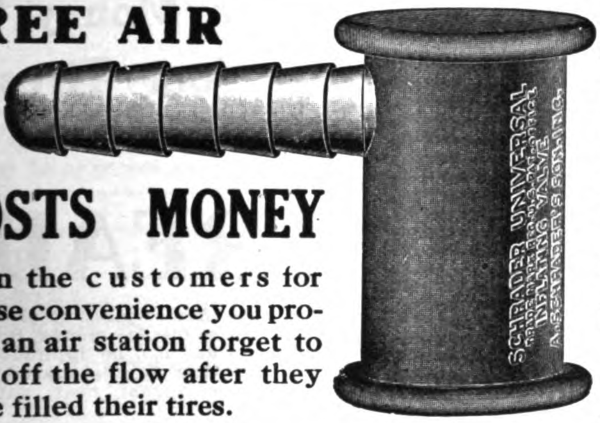
THE AUGLAIZE MOTOR CAR CO.

New Bremen - - - Ohio.

FREE AIR

COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.



Guard against this waste by attaching a

Schrader Automatic Inflating Valve

to your air hose.

Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve.

Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.25 in U. S. A.

W. S. S.

We Suggest Stamps
War Savings Stamps
Without Shells Soldiers
Would Soon Succumb
War Savings Stamps
Will Supply Soldiers
With Shells

Buy all you can and help to win the war.

Manufactured by **A. SCHRADER'S SON, Inc.**

800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to owners of pleasure cars.

TRIPLEXD
GASOLINE HOSE
TRIPLEXD

METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

Write to Dept. J-10 for illustrated matter and prices.

TRADE OUTLET

PEERLESS BLACK JAPAN.
Extra Fine.

A rich gloss air drying enamel for touch up and all around use on wood and metal parts of automobiles. One coat covers solid and dries over night.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS FENDER JAPAN.
Jet Black.

Made especially for coating fenders and hoods with a rich black gloss enamel. Air dries and has a finish like a baked job. Dries in twenty-four to thirty-six hours.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS MIRROROID.

A varnish renewer to be applied to varnished sufaces that have lost their luster and become dull through use. Dries over night with a fine luster that will wear for months.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS GASKET SHELLAC.

A strictly high grade product cut in pure alcohol for gaskets, cork carburetor floats and such parts of an automobile. A high grade product which makes a tight seal.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS LINING DYE.

A powerful black dye that dyes all cloth linings a black uniform color over stains and faded parts alike. Dries in two or three hours.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

PEERLESS RIM PAINT.
Anti-Rust.

A protective coating for automobile rims, to allow tires to be removed with ease and keep rims from rusting. Dries in four to five hours.

Sold by Garages and Auto Supply Stores.

THE COLUMBUS VARNISH CO.
Columbus Ohio

GREAT SLAUGHTER on Second Hand Auto and Truck Parts of all descriptions, including Magnetos, Carburetors Starters, Head Lights, Radiators and everything pertaining to the automobile. Consult us first and save yourself time and trouble.

BOULEVARD MOTOR CO.,
276 River St., Cambridge, Mass.
Phone Cambridge, 1621.

The Only Complete Stock of
POPE-HARTFORD PARTS
in New England. Gears, Rear Ends, Axles, etc. Large 3-ton truck in perfect running order. Will pay spot cash for old cars in any condition.

Write or phone Cambridge 2207.

CAMBRIDGE AUTO PARTS CO.
220 Windsor St., Cambridge, Mass.

WHERE TO OBTAIN "ALL PARTS for ALL CARS" AT LOWEST PRICES

Better Service. Better Quality.

We have a complete stock of and can make immediate delivery on Axle, Motor and Transmission Parts, Steering Gears, Radiators, Pinions, Pistons, Bearings, Universal Joints, Fenders, etc., etc.

BODIES.

Late type 7-passenger Packard body, complete with top and windshield	$300
1915 Studebaker body, 5-passenger.	45
Abbott cloverleaf bodies, complete with tops and windshields	175

SPRINGS.

For all makes of cars	$3 up

WHEELS AND RIMS.

For all makes of cars	$3 up
Houck wire wheels, 34x4½ and 36x4½, set of five wheels...	75
Front wheels for Fords	75c each

TIRES.

Large assortment of standard size tires.

30x3 Smooth Tread	$10.00
30x3½ Non Skid	14.50
31x4 Non Skid	20.00
32x3½ Non Skid	14.95
33x4 Non Skid	21.70
34x4 Non Skid	21.95

SPECIALS.

Gasoline Tanks, all shapes and sizes	$1.00 up
Fenders for all cars	3.00 up
6 volt Autolite Generators....	12.50
6 volt Ward-Leonard Starting Motors	15.00
Spot Lamps	1.00 up
Steering Gears	2.50 up

Write for a free copy of our bargain bulletin.

Puritan Machine Company
"All Parts for All Cars."
51 Tenth St. Detroit, Mich.

WHY PAY FULL PRICE FOR AUTO PARTS.

We save you on slightly used parts **50 to 75 per cent.**

MAGNETOS.

Bosch DU4 Advanced Spark	**$25**
Bosch DU4 Set Spark	**20**
Bosch DR4	**20**
Bosch DR6	**25**
Bosch D6	**20**
Bosch D4	**20**
Sims	**15**
Low Tension Magnetos	**5**
Motors	**$40 to $100**
Solid Wheels with Tires for Trucks and Trailers	**$10 to $25 each**

Axle Shafts, Pinion Gears, Wing Gears.

Full line of Accessories at bargain prices.

PRISCOL AUTO PARTS CO.,
268 Grand River Ave., Detroit, Mich.

SAVE 50% TO 75% ON AUTO PARTS. Pope-Hartford, Columbia, Reo, Buick, Overland, Chalmers, E. M. F. and all others.

Splitdorf, Remy Magnetos	**$5**
Eisemann Magnetos	**$10**

Orders shipped within 24 hours.

CONNECTICUT AUTO PARTS CO., INC.
1070 Main St., Hartford, Conn.

The Most Complete Stock of AUTO PARTS in New England

Parts for most any car up to 1914. Good serviceable parts. A complete line of **Crank Shafts, Radiators, Springs, Axles, Differentials and Transmissions, Stewart Vacuum Tanks, Starters, Shock Absorbers.** All at low prices.

For Quick Clearance

Carburetors	**$3 up**
Generators	**$5 up**
Bosch Magnetos	**$10 up**

Prompt and Intelligent Service.

Satisfaction Guaranteed.

Used Motor Parts Co.
1264 Massachusetts Ave., Boston, Mass.

Save Money On Your Tires

Here is a composition that not only makes an old, worn tire new, but actually prolongs the wear of your tire.

TREADO

adds thousands of miles to tires, it rebuilds worn treads, mends large and small cuts and can be applied by anyone. TREADO is a prepared rubber. Requires no cement, heat, patches or rubber.

Full directions on every can. Send today for a can at 50c.

TREADO
Manufacturing Co.
42 Dwight St., Springfield, Mass.

MANUFACTURERS AND GARAGES.

With our facilities we are especially equipped to handle large and small **Welding Jobs.**

Work done when you want it.
Correspondence invited.

WILKINS & HOVEY CO.,
35 Albany St., Cambridge, Mass.

TRADE OUTLET

AUTO SALVAGE CO., INC.

The World's Largest New and Used Parts House. St. Louis, 2823-25 Locust St.; Kansas City, 1701 Main St.; Cincinnati, 214 E. Third St. Write to nearest office.

Parts for any Automobile at a saving of 50% to 80%. Our three great plants cover every state in the Union, and we are therefore in better position to fill your orders.

Engines—40 to 50 of them on the floor now and we will make prices on them that will move them. Several unit power plants.

Transmissions—Planetary, two-speed, three-speed, four-speed, centre control, with and without multiple disc clutch; all at surprisingly low prices.

Rear Axles—From the Timken to the Ford, many with transmission on them, at prices from $10 to $75.

Our Guarantee: You Must Be Satisfied. Any article purchased from us which does not in your opinion, give satisfaction or fit, can be returned to us at our expense and your money will be cheerfully refunded.

Double Tread Tires

Guaranteed for good service.

Some of our prices.

30x3	**tire**	**$5.25**
30x3½	**tire**	**6.50**
34x4	**tire**	**9.50**

For Non-Skid, 10 Per Cent Extra.

All other sizes on request. 20% deposit required on C. O. D. orders.

Write for list now!

Save 50% on your tire bills.

Saving on tubes also.

M. Liben & Co.

205J West 48th St., New York City.

U
USE
USED
TIRES

Our references should command your attention. Any Boston tire agency, Dunn's and Exchange Trust Co. Mgrs. K. S. Brayton, George Vallely.

30x3	$3.30	34x4	$8.00
30x3½	$4.50	34x4½	$9.00
32x3½	$4.85	35x4½	$9.00
31x4	$6.00	36x4½	$9.00
32x4	$6.00	35x5	$12.00
33x4	$7.00	37x5	$10.00

NON-SKIDS 10% HIGHER.

USED TIRE OUTLET CO.

191 Cambria St., Boston, Mass.

After working on your car wash your hands without water by using **"PARKO."** Send 25 cents and dealer's name for a large can to

M. FRANKLIN,
28 School St., Boston, Mass.

FOR YOUR

AUTOMOBILE PRINTING

GET IN TOUCH WITH

KEYSTONE SERVICE PRINT, Inc.

307 W. 47th St. :: :: NEW YORK, N. Y.

OUR STAFF AND FACILITIES ARE ESPECIALLY EQUIPPED TO CATER TO YOUR WANTS

Superior Parts and Brushes

FOR ALL

Ignition and Starting Lighting Systems

Used for Years by the Best Repair Shops Everywhere.

"They Last Longer but Cost Less"

Write for Catalogue

Specialty Manufacturing Co.

637 Massachusetts Ave., Arlington, Mass.

Send it to Detroit

MAGNETOS.

Bosch DU-4 Variable spark	$30.00
Bosch Du-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cyl. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	10.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hour service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange
192 Grand River Ave, Detroit, Mich.

AUTO PARTS.

50% to 75% Off Mfg. Price List.

Parts for Packards, Buicks, Chalmers, Overlands, Jacksons, Fords and 75 others. You can save 50% to 75% from accessories.

Mail orders will be attended promptly.

Tel. Brockton, 910.

A. BERGER & SON,
104 Otis St., Brockton, Mass.

Auto Parts

SAVE AT LEAST 50%

We have in stock at all times parts for Stearns, Stevens-Duryeas, Flanders, Maxwells, E. M. F., Buicks, Mitchells, Speedwells, Herreshoffs, Hudsons, Elmores, Pope Hartfords and Franklins. Write, Wire or Phone.

BOSTON AUTO PARTS CO.,
1240 Dorchester Avenue, Boston, Mass.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS., 40 Mathewson St. Providence, R. I.

Phone Union 4179-R.

VACUUM MOBILOIL

ON THE WAY

A carload of Vacuum Mobiloil is expected at any time.

DEALERS AND TRUCK USERS

Get My Price Before Buying—It Is Right. Write Today.

NATHAN E. PACKARD
221 Warren Ave., Brockton, Mass.

"NORMA"

PRECISION BALL BEARINGS

(PATENTED)

As the success of an organization rests upon the capacity of the men comprising it, so does the success of a machine depend upon the integrity of its parts. To sacrifice quality for price in any part of a machine, is as fatal as to place an incapable man in an efficient organization. There can be no more short-sighted fallacy.

Day-in-and-day-out dependability has uniformly been the distinguishing characteristic of the high-grade ignition apparatus and lighting generators in which "NORMA" Precision Bearings have been the standard bearings. Their record is not one of days or months, but of years.

Be *Sure*—See That Your Electrical Accessories Are "NORMA" Equipped.

THE NORMA COMPANY OF AMERICA

1790 BROADWAY NEW YORK

Ball, Roller, Thrust. Combination Bearings

The Accessory and Garage Journal

INDEX TO ADVERTISERS

Page

Adamson Mfg. Co. ... 65
Advance Auto Accessories Corp. ... Cover
American Accessories Co. ... 72
American Bureau of Engineering, Inc. ... 11
Auglaize Motor Car Co. ... 67
Auto Salvage Co., Inc. ... 69

Bacon Service ... 64
Balman-Whitten Mfg. Co. ... 64
Bean Tool & Sales Co. ... 63
Bearings Service Co. ... 6-7
Bilodeau Ball Bearings Works ... 72
Boston Auto Parts Co. ... 69
Bowser & Co., Inc., S. F. ... 71
Brunner Mfg. Co. ... 5
Bunting Brass & Bronze Co. ... 66

Chase Co., L. C. ... 62
Colorado Tire and Leather Co. ... 3
Columbus Varnish Co. ... 68
Continental Auto Parts Co. ... 64
Corning Glass Works ... 13
Corp Brothers ... 69
Curtis Pneumatic Machinery Co. ... 14

Detroit Battery Co. ... 62
Detroit Magneto Exchange ... 69
Dixon Crucible Co., Jos. ... 63
Dyer Co., G. H. ... 1

Eastern Parts Mfg. Co., Inc. ... 60

Faw, Inc., J. H. ... 71
Fisk Rubber Co. ... 57
Fitzgerald Mfg. Co. ... 12

Greenfield Tap and Die Corp. ... 10

Harvey Spring and Forging Co. ... 63
Higgins Spring and Axle Co. ... 72
Hubbard, M. K., Spring Co. ... 63

Imperial Brass Mfg. Co. ... 59
International Metal Polish Co. ... 62

INDEX TO ADVERTISERS

(Continued)

Page
Jefferson Electric Mfg. Co....60
Jenkins Vulcan Spring Co.... 9

Kennedy Car-Liner and Bag Co....65
Keystone Service Print Co., Inc....69
King-Bull Mfg. Co....64

Lawson, F. H., Co....63
Liberty Accessories Corp....Cover

Mabey's Electric and Mfg. Co....66
Martin Mfg. Co....60
Metal Hose and Tubing Co....67
Mossberg Co., Frank....Cover
Motor Specialties Co....60
Mueller & Co., R. S....62
"MaxF" Grinding Wheel Corp....66

National Bearings Service Co....61
National Cash Register Co....55
New Departure Mfg. Co....64
New Era Spring and Specialty Co....62
Norma Co. of America....70

Piston Ring Co....64
Friscol Auto Parts Co....68
Puritan Machine Co....68

Ross-Gould List and Letter Co....66

Scaife, Wm. B. & Sons Co....64
Schrader's Son, Inc., A....67
Shaler Co., C. A....63
Shurnuff Mfg. Co.... 8
Specialty Mfg. Co....69
Stenman Electric Valve Grinder Co., Inc.... 4

United Engine and Mfg. Co....63
United States Air Compressor Co....61
Used Motor Parts Co....68
United Motors Service, Inc.... 2

Vanderpool Co....10

Walden-Worcester, Inc....Cover
Webber Mfg. Co....72
Westfield Chemical Co....66
Weston Electrical Instrument Co....67
Wilkins & Hovey Co....68
Williams Foundry and Machine Co....11

ONE POUND
EUREKA
VALVE GRINDING
TRADE MARK
COMPOUND
MFR'D BY
AUTO EQUIPMENT CO
32 HOLLYWOOD AVE.
EAST ORANGE, N.J.

Pound Cans,
Each, $1.20

The Standard Valve-Grinding Compound

Backed Up by an Uncontested Reputation

Thousands of Users Have Quickly Triumphed Over the Worst Carbonized and Poorly Seated Valves.

DEALERS—Meet the demand

EUREKA
VALVE GRINDING COMPOUND

Package, 40c

Car Owners will not only demand and call for it—they will exclamatorily Shout for

EUREKA **Valve Grinding Compound**

Cuts Sharp, Clean and True

Eureka Compound contains no oil or grease and consequently does not run all over the engine or work. For this and other well-known quality reasons, car owners prefer ***Eureka.*** It will grind valves in the worst possible condition in twenty minutes. It is put up in pound cans, each grade separate, especially for manufacturers and shops. Also put up in boxes containing three grades, coarse, medium and fine.

Distributors to the Trade:

J. H. FAW, Inc.

37 Warren Street **New York City**

BOWSER
ESTABLISHED 1885

OIL and GASOLINE STORAGE SYSTEMS

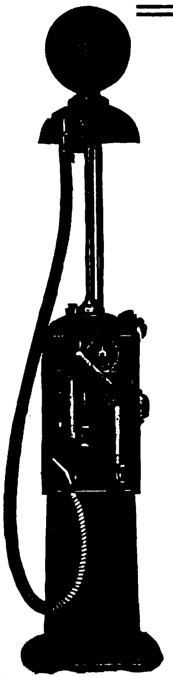


Figure 241—a one gallon measuring pump for curb use.

ALWAYS on the job; safe; rapid and efficient in operation; clean and attractive; time and labor savers; business producers.

The pump with business qualifications.

Write for Booklet 4.

S. F. Bowser & Co., Inc.
Ft. Wayne, Indiana, U. S. A.

UNIVERSAL TRUCK ACCOUNTING SYSTEM

(Copyright, May, 1914, by The Automobile Journal Publishing Company.)
All Rights of Use or Publication in Any Form Reserved.

It affords every detail of time and work of any number of machines, the labor, operating cost, revenue and earnings, with comparisons for any period, in one record book and day card for each truck.

The simplest and most comprehensive record ever conceived, adaptable for use with any method of house bookkeeping or independently, that can be made to serve as part of any method of accountancy.

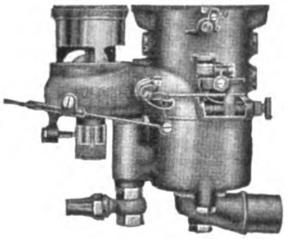
The most intensely practical system of accounting ever devised, that can be maintained by a girl clerk and which has no limitations.

When you know the exact cost of truck operation and what is earned through the use of any vehicle, you have data of the greatest practical value.

Detailed information at request. When writing state number of trucks in use.

The Motor Truck

TIMES BUILDING ***PAWTUCKET, R. I.***



YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

More Mileage—More Power—More Speed

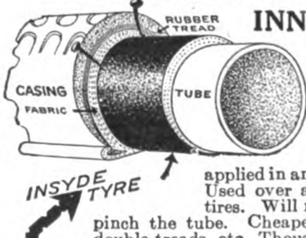
Get him to try it for 15 days. Satisfaction guaranteed

WEBBER MANUFACTURING COMPANY

Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway

---

INSYDE TYRES



INNER ARMOR FOR AUTO TIRES

Double tire mileage, prevent punctures and blowouts. Easily applied in any tire without tools. Used over and over in several tires. Will not separate, heat or pinch the tube. Cheaper and better than double treads, etc. Thousands sold. Guaranteed. Details free. Distributors, dealers and agents wanted. Act quick.

American Accessories Co., Dept. GJ, Cincinnati, O.

NO SPRING BURDEN

WHEN YOU USE

HIGGINS QUALITY SPRINGS

For Replacement

No hump—no hole—no bolt—no jolt. No center breakage. The one type that triumphs over all others—and all troubles. Made from best grade motor car spring steel of special analysis. Properly heat-treated. Rigidly tested. Rust and squeak proof. Fully guaranteed. For all cars. Speedy delivery.

Big, constant customer getter and profit payer for dealers. Write for catalog and prices.

Dept. 729 HIGGINS SPRING & AXLE CO., Racine, Wis.

Guaranteed Bearings

We Exchange Rebuilt Bearings for old or worn ones BILODEAU BALL BEARINGS WORKS

ECONOMY *Plus* EFFICIENCY

These words mean great strength toward winning the war. They form our policy—and by the standard of that policy we are continually schooling garage men and repair men to avail themselves of our exceptional service of Rebuilding Worn Bearings.

Bilodeau Rebuilds All Makes of Worn Bearings, to Run as True as When New.

Write at once for catalog, listing types, sizes and prices of standard bearings. Trade discounts confidential.

BILODEAU BALL BEARING WORKS

66 Stanhope Street, BOSTON, MASS.

MORE JOBBERS

WHO HANDLE

G. H. DYER CO.'S PRODUCTS

NOTED FOR

Long Service. *Attractive Prices.* *High Efficiency.*

W. H. Rowerdink & Sons Co.,
Rochester, N. Y.
H. C. Roberts El. Supply Co.,
Phila., Pa., and Syracuse, N. Y.
J. C. Russell Co.,
Holyoke, N. Y.
Chas. Robel Co.,
Washington, D. C.
Sunderland Mach. & Sup. Co.,
Omaha, Neb.
Jos. Strauss Co.,
Buffalo, N. Y.
Shapleigh Hdw. Co.,
St. Louis, Mo.
Strauss Saddlery Co.,
St. Louis, Mo.
J. B. Sickles Co.,
St. Louis, Mo.
Standard Supply & Equip Co.,
Phila., Pa.

Seig Iron Co.,
Davenport, Ia.
Shadbolt & Boyd Hdw. Co.,
Milwaukee, Wis.
Tarbell-Watters Co.,
Springfield, Mass.
Toledo Rubber Co.,
Toledo, O.
Tolman Auto Supply Co.,
Richmond, Va.
Todd Rubber Co.,
Hartford, Conn.
Toledo Tire & Supply Co.,
Toledo, O.
W. H. Taylor Co.,
Allentown, Pa.
U. S. Rubber Co.,
Boston and Pittsburgh.

Western Motor Supply Co.,
Milwaukee, Wis.
James Walker Hdw. Co.,
Montreal, Canada.
Western Motor Supply Co.,
Minneapolis, Minn.
Waite Auto Supply Co.,
Providence, R. I.
Wetmore-Savage Co.,
Boston, Mass.
R. W. Wheeler,
Indianapolis, Ind.
A. J. Wilkinson,
Boston, Mass.
J. V. Wilson,
Boston, Mass.
W. M. Whaley Co.,
Norfolk, Va.
Western Auto Sup Co.,
Omaha, Neb.

WE MANUFACTURE

Pistons
Cylinder Reamers
Duplex Reamers
Bushing Extractors
External Brakes
Leakage Proof Rings
Piston Rings

FOR
FORD
CARS

Connecting Rod and Main Bearing Reamers
Connecting Rod Rebabbitting Jigs
One Man Towing Devices
D & O Anti-Wobbler Safety Steering Device

Oxy-Acetylene Welding and Cutting Equipment
Lead Burning Apparatus
Acetylene Brazing and Soldering Apparatus
Pistons for Any Make or Model of Engine

WE RE-GRIND AND FILL-IN SCORED CYLINDERS

TRUCK TRACTOR PLEASURE CAR MARINE

EXCELLENT WORK BY SKILLED OPERATORS

NOTICE! We are publishing the names of all jobbers handling our products in this space—June, July and August. If your jobber does not handle or won't supply DYER PRODUCTS, *write us.*

THE G. H. DYER Co., - - Cambridge, Mass.

CARBORUNDUM
VALVE GRINDING COMPOUND
MANUFACTURED BY
THE CARBORUNDUM CO.-NIAGARA FALLS, N.Y., U.S.A.
CARBORUNDUM VALVE GRINDING COMPOUND

The New
Improved Combination Can
for

Carborundum
Valve Grinding Compound

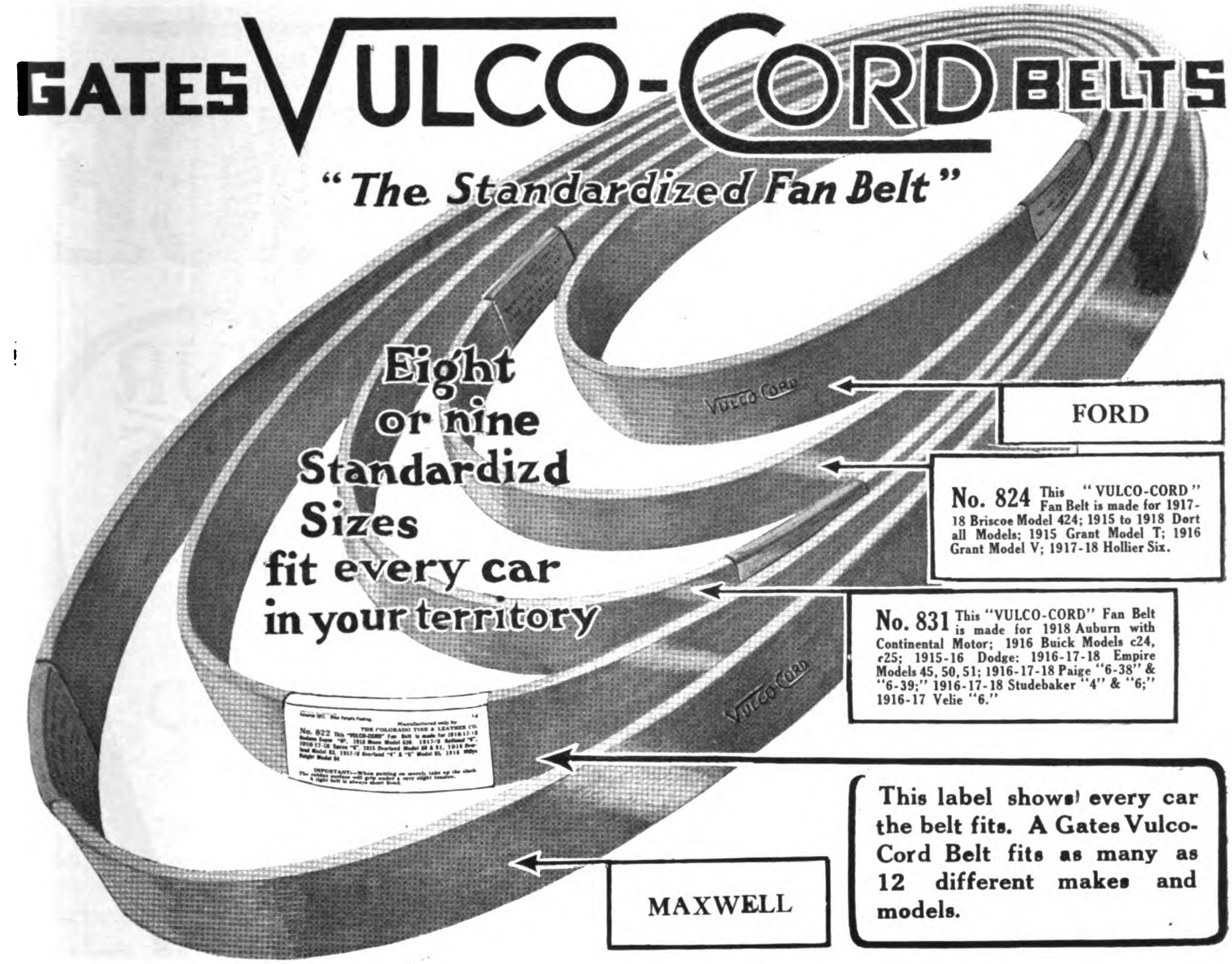
IT wasn't possible to improve the contents so we went to work and improved the can. Now we have the new flat combination can—handy, serviceable, practical—a can that will appeal to the car owner and garage man alike. Two compartments side by side—one for the coarse, one for the fine compound—each holding two ounces of Carborundum Compound. This can can't leak—it's not like the double-end can where one end is always upside down. And this can will help you further your sales of

Carborundum Valve
Grinding Compound
The Compound that Cuts

Automobile, motor boat, motor cycle owners, garage and repair men are your customers for it. Do you know about the other Carborundum Products for the Garage?

THE CARBORUNDUM COMPANY
NIAGARA FALLS, N. Y.
NEW YORK CHICAGO BOSTON PHILADELPHIA CLEVELAND CINCINNATI PITTSBURGH
MILWAUKEE GRAND RAPIDS

-sell this fan belt for the big car


GATES VULCO-CORD BELTS
"The Standardized Fan Belt"
Eight or nine Standardizd Sizes fit every car in your territory
VULCO CORD
VULCO CORD
FORD
MAXWELL

No. 824 This "VULCO-CORD" Fan Belt is made for 1917-18 Briscoe Model 424; 1915 to 1918 Dort all Models; 1915 Grant Model T; 1916 Grant Model V; 1917-18 Hollier Six.

No. 831 This "VULCO-CORD" Fan Belt is made for 1918 Auburn with Continental Motor; 1916 Buick Models c24, c25; 1915-16 Dodge; 1916-17-18 Empire Models 45, 50, 51; 1916-17-18 Paige "6-38" & "6-39;" 1916-17-18 Studebaker "4" & "6;" 1916-17 Velie "6."

This label shows every car the belt fits. A Gates Vulco-Cord Belt fits as many as 12 different makes and models.

Patented in U. S. and Foreign Countries.

To Jobbers and Dealers

Write for this free Booklet

Standardization is the secret of more fan belt business for the dealer. Here is the reason:

There are today 184 well-known makes and models of cars on the market, and it has been impossible for you to carry belts to fit more than 3 or 4. Hundreds of customers have been turned away because their cars could not be fitted.

85% of the fan belt business, outside of Ford sizes has been handled through the car-manufacturers.

You now can get this business by selling the "Standardized" Fan Belt.

Gates Vulco-Cord belts are stocked by 246 jobbers and sold by over 20,000 dealers, because from a stock of 8 or 9 standardized sizes you can fit every car in your territory.

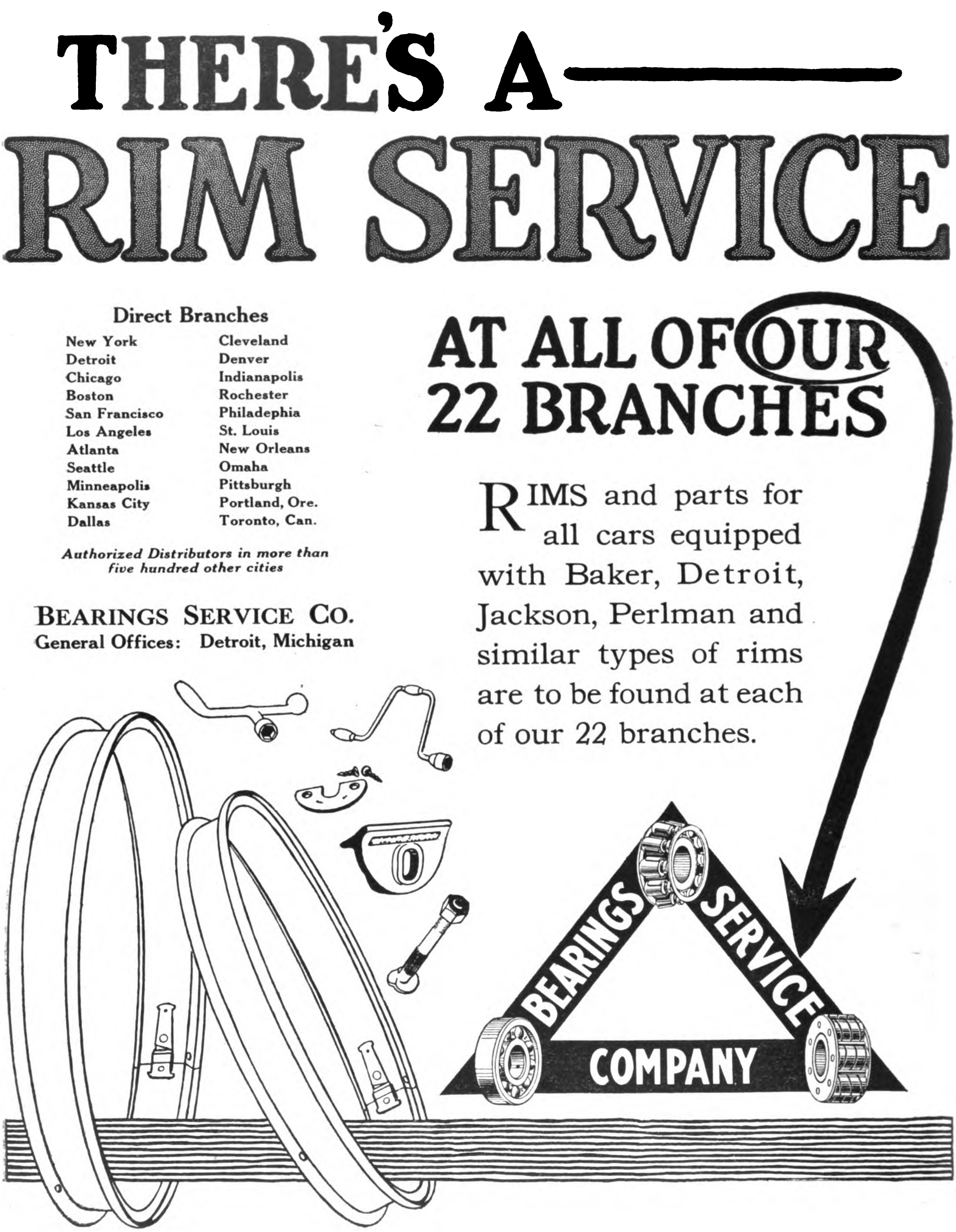
A Gates Vulco-Cord Belt is ten-ply, endless, double strength and non-stretch. It positively grips the pulley, and there is no slip—100% efficient. Tested to over 1000 lbs. and sold under an unqualified guarantee of satisfaction to the customer.

Emphatically the Standardized Fan Belt is the belt to tie to for 1919.

"The Best Fan Belt We Have Ever Made."

THE COLORADO TIRE AND LEATHER COMPANY, DENVER

WORLD'S LARGEST MAKERS OF FAN BELTS



THERE'S A—

RIM SERVICE

Direct Branches

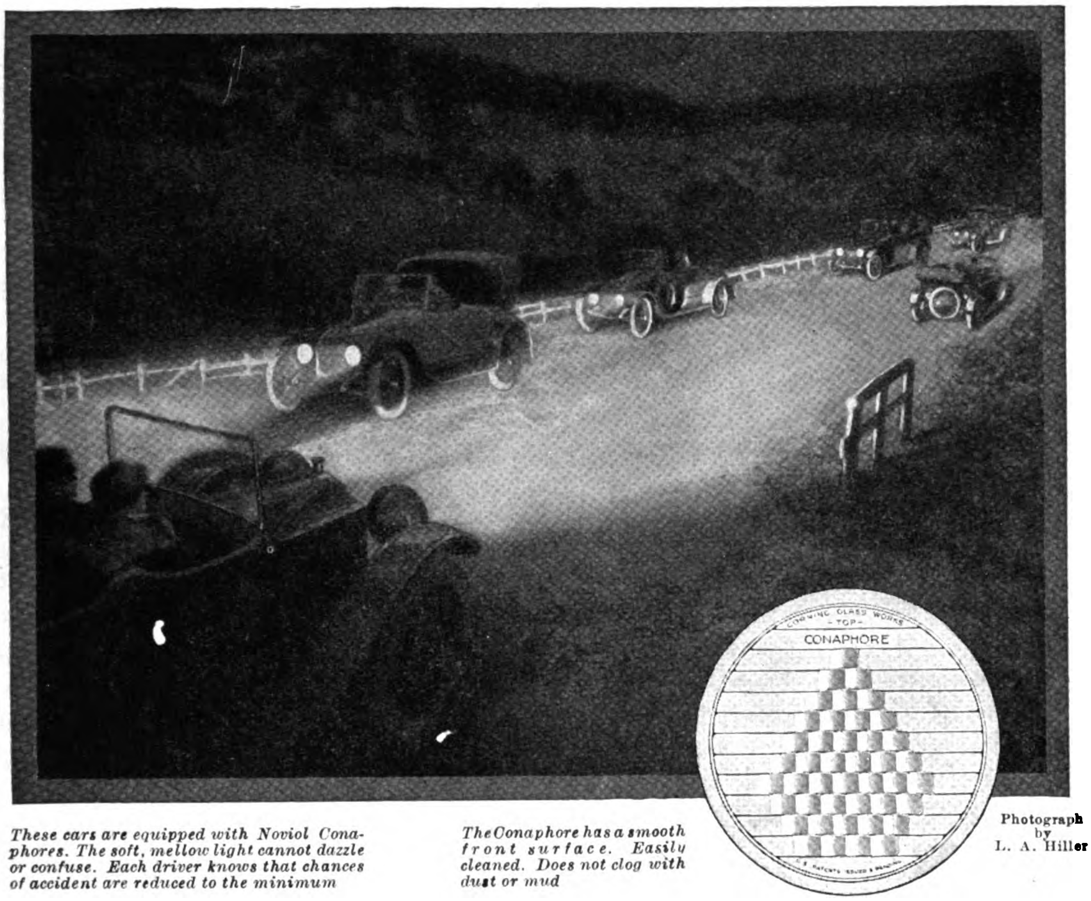
New York
Detroit
Chicago
Boston
San Francisco
Los Angeles
Atlanta
Seattle
Minneapolis
Kansas City
Dallas
Cleveland
Denver
Indianapolis
Rochester
Philadephia
St. Louis
New Orleans
Omaha
Pittsburgh
Portland, Ore.
Toronto, Can.

Authorized Distributors in more than five hundred other cities

BEARINGS SERVICE CO.
General Offices: Detroit, Michigan

AT ALL OF OUR 22 BRANCHES

RIMS and parts for all cars equipped with Baker, Detroit, Jackson, Perlman and similar types of rims are to be found at each of our 22 branches.



These cars are equipped with Noviol Conaphores. The soft, mellow light cannot dazzle or confuse. Each driver knows that chances of accident are reduced to the minimum

The Conaphore has a smooth front surface. Easily cleaned. Does not clog with dust or mud

Photograph by L. A. Hiller

Cash in on these exclusive features

Five sales points which mean profits to you

1. Noviol Conaphores, with their unique yellow tint, flash a sure signal of safety to oncoming motorists—

2. They provide a light that is always easy on the driver's eyes—

3. They define a clear path for the driver when wet pavements reflect a glassy glare from street lamps and electric signs—

4. They cause the greens of the roadside to stand out in their natural colors, and show up the ditches—

5. Most important of all, they eliminate the dangerous "back-glare" which blurs the driver's vision on foggy or dusty nights.

Only in the Conaphore can motorists get these extra advantages.

A product of technical research

Noviol Glass and Conaphore design were developed in the Corning laboratories, which lead the world in the art of glass making. Conaphores bring safety and comfort on the highways, just as Corning signal glass protects every great railroad of the continent.

As the famous double target test proves conclusively, Conaphore design keeps the beam below the 42-inch level, and yet gives the longest possible range —500 feet—with ample sidelight. No light is wasted by diffusion. No light is dumped in the foreground.

Take advantage of the market

Supply the demands for Conaphores in your territory. Let your customers know that your store is Conaphore headquarters and you are bound to get some extra profits.

Write for handsome Conaphore window transparency—all ready to mail you. It ties up your store with our big national advertising campaign.

Retail Price List (per pair)	Noviol Glass	Clear Glass
5 to 6⅞ inches incl.	$2.40	$1.60
7 to 8½ inches incl.	3.50	2.50
8⅝ to 10 inches incl.	4.50	3.00
10⅛ to 11½ inches incl.	6.00	4.00

Prices 25 cents more per pair west of Rocky Mountains. Sizes vary by steps of ⅛-inch above 6½-inch size.

CONAPHORE SALES DIVISION
EDWARD A. CASSIDY CO., Mgrs.
Madison Avenue and 40th Street, New York City

**NO GLARE
RANGE 500 FT.**

CONAPHORE

**PIERCES FOG
AND DUST**

CORNING GLASS WORKS—WORLD'S LARGEST MANUFACTURERS OF TECHNICAL GLASS

U. S. GOVERNMENT
PROCLAMATION
TO MERCHANTS

THE Government will, early in September, under the new Selective Service law, call for the registration of every male in the United States between the ages of 18 and 45 (both inclusive), unless previously registered, on a date to be announced by Presidential Proclamation and in the public prints. *There will be no valid excuse for failure to register. Imprisonment is the only penalty for default.*

The Government, therefore, appeals to you as an employer and leader in your Community to do your utmost to inspire every man of 18 to 45 in your employ to present himself at his local board for registration on the day to be announced in the newspapers.

There are many ways you can help in this essential work before the day of registration by the proclamation of this fact:

EVERY MAN

between 18 and 45 (both inclusive), unless previously registered, must register to win the war

WATCH NEWSPAPERS FOR REGISTRATION DATE

Insert a square like this in your newspaper advertising.

Post it in Bulletin form in your store and windows.

Print it on slips for the pay envelopes of every employee, male and female. Enclose slips in every letter and invoice you send out.

Wrap it in every package.

Post this message on the side of your delivery wagons.

Call patriotic meetings of your employees and impress on them the vital importance of complying with the law, and others with their duty of seeing that the law is complied with. Appoint a committee to see that it is done. Arrange for definite hours when the men in the different departments of your business shall go and register.

Call a meeting of other merchants in your locality and devise ways and means of conveying the all-important message to every man you can reach.

Appeal to your local newspapers to give it editorial emphasis in every issue.

Call upon your church, club and lodge.

Exercise your resources of ingenuity and originality in proclaiming this message broadcast.

Not every man will be called to military service; only those who are properly assigned to Class 1 will be selected. But every male of the specified ages **must register.**

For the cause of Liberty, Democracy and Humanity your Government calls on you to immediately devote every possible effort and energy to this most vital work, that we may quickly win the war.

Not an hour is to be lost. **Start at once.**

Signed: **E. H. CROWDER,**
Provost Marshal General

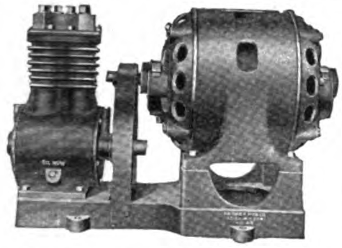
Approved: **NEWTON D. BAKER,**
Secretary of War

Contributed through Division of Advertising

United States Gov't Comm. on Public Information

This space contributed for the Winning of the War by
ACCESSORY & GARAGE JOURNAL

BRUNNER
GARAGE
BRUNNER AIR SERVICE
BRUNNER



The confidence of the motoring public is the garageman's greatest asset. The average motorist knows that Brunner Service is absolutely dependable and has confidence in the Brunner Equipped Garage.

Without the confidence of the motorist no garage can be successful because the present day motorist expects and demands high class service and knows where to get it—he knows that the garageman who places Brunner Air Service at his disposal is a live wire with the interest of the motoring public at heart, and when he sees the Brunner Sign on a garage he has confidence in that garage and stops for air and such supplies or service as he may be in need of, and he never has to drive on his way disappointed.

IF YOU INSTALL A BRUNNER AIR COMPRESSOR

You will find it just as dependable and satisfactory as thousands of other garagemen have found it for years. You will find it a wonderful time saver, and you will find it to be exactly as represented in every way.

You will also find the trade of the Brunnerwise motorist both satisfactory and profitable for the reason that he appreciates good service and is a good spender—he is a firm believer in reciprocity—he follows the Brunner Sign.

When you buy a Brunner Air Compressor you buy a quality product which has always been sold on its merit without resort to advertising promises of impossible performances, you receive it with the guarantee of both the manufacturer and the Brunner Jobber who takes your order that it will do the work for which it is recommended and be found exactly as represented—you cannot possibly go wrong with a Brunner Air Compressor.

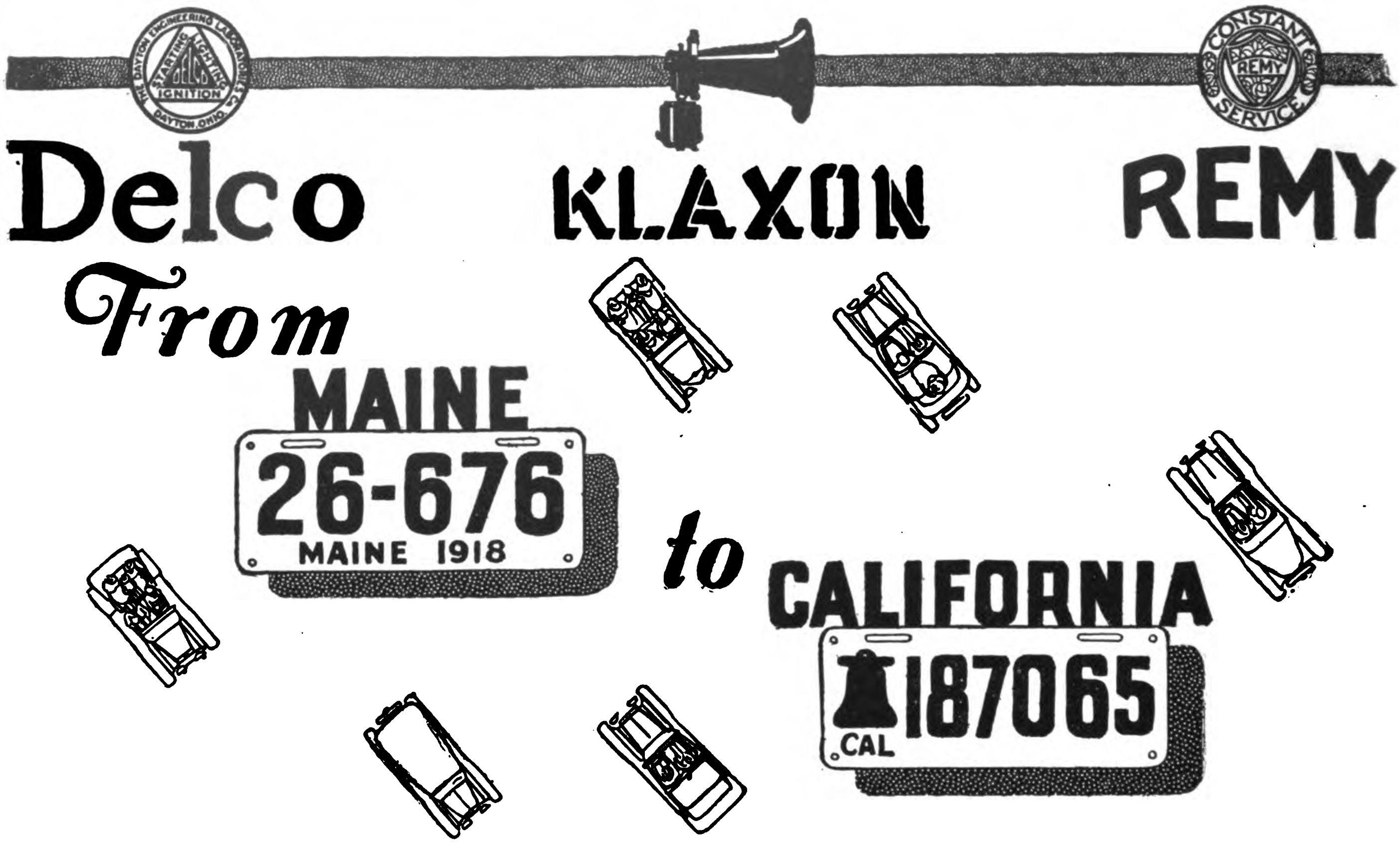
"The Motorist who is Brunnerwise
knows Brunner Service Satisfies"

Write for No. 15 Catalogue and the name of the Brunner Jobber
covering your territory. Get acquainted with the Brunner line.

BRUNNER MANUFACTURING COMPANY

General Office and Plant:
Utica, N. Y.

Cincinnati Branch:
Cincinnati, Ohio.


THE DAYTON ENGINEERING LABORATORIES CO.
STARTING LIGHTING IGNITION
DELCO
DAYTON, OHIO
CONSTANT REMY SERVICE
Delco
KLAXON
REMY
From
MAINE
26-676
MAINE 1918
to
CALIFORNIA
187065
CAL

Factory Branches for Service

Now there is a nation-wide service organization for Delco, Klaxon and Remy electrical equipment—United Motors Service Incorporated.

This organization consists of—

Six branches equipped to render service on Delco, Klaxon and Remy—

Five branches giving service on Remy equipment only—

Fifteen service stations for Remy—

66 service stations for Klaxon—

This means that wherever you are located there is a United Motors Service Incorporated Branch or Service Station in your locality where you can get direct factory service on Delco, Klaxon and Remy electrical equipments.

Not only is this service convenient —it is official and efficient.

You are guaranteed absolutely genuine parts—United Motors Service Incorporated is the service division of the United Motors Corporation of which Delco, Klaxon and Remy are subsidiary units.

United Motors Service Inc. branches in the following cities giving service on Delco, Klaxon and Remy:

Kansas City
Chicago
Detroit
Los Angeles
San Francisco
New York

15 cities in which there are United Motors Service Inc. service stations for Remy
66 cities in which there are United Motors Service Inc. service stations for Klaxon

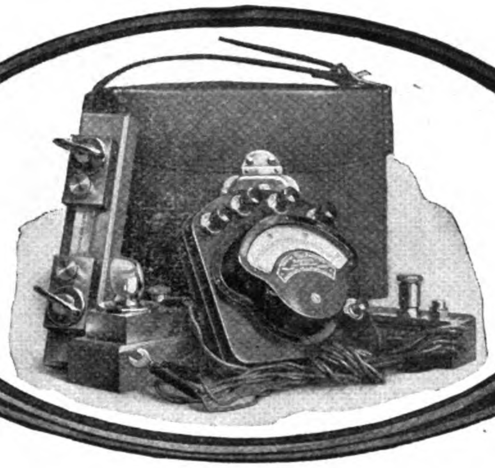
MOTORS SERVICE
TRADE MARK

United Motors Service Inc. branches in the following cities at present rendering service on Remy only:

Denver
Minneapolis
Cleveland
Boston
Atlanta

UNITED MOTORS SERVICE
INCORPORATED

General Offices: **Detroit, Mich.**



Bespeaking Patience

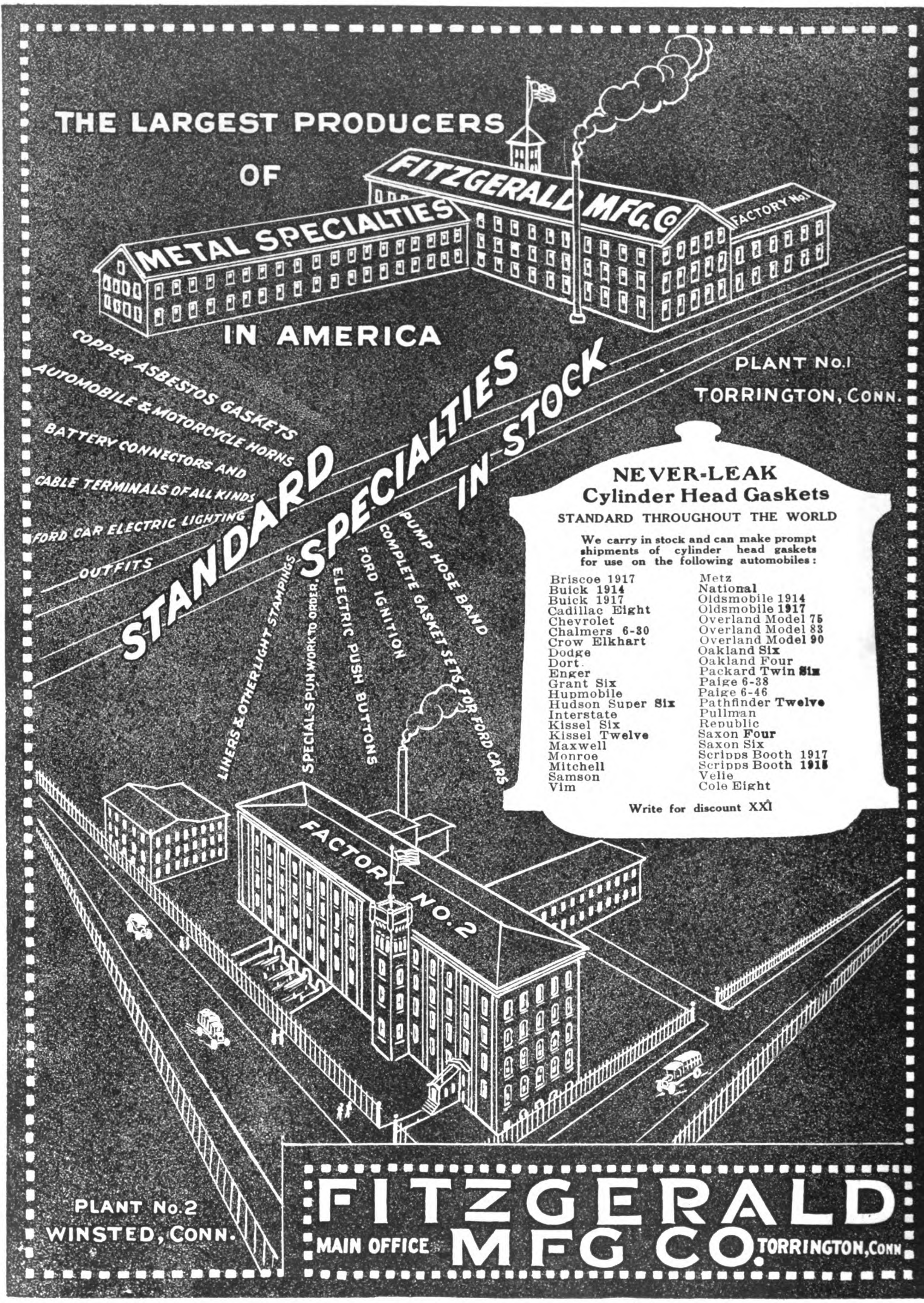
It has become necessary to advise prospective purchasers of the Weston Model 280 Garage Testing Instrument that deliveries can no longer be made promptly. Under present war conditions, there are unusual requirements which must receive our consideration in advance of commercial orders.

For this reason, we can accept your order only on the basis of delivery when possible. We suggest that you place it as early as you can.

Appreciating fully the needs of our customers and that the radical superiority of the Weston Model 280 Garage Testing Instrument is now well known to Garage and Service Station men, we promise to execute orders in the order of their receipt and as quickly as conditions will permit.

We are confident that this frank explanation of the situation will be accepted by prospective purchasers in the co-operative spirit in which it is submitted.

WESTON ELECTRICAL INSTRUMENT CO.
103 Weston Avenue Newark, N. J.
23 Branch Offices in the Larger Cities


THE LARGEST PRODUCERS
OF
METAL SPECIALTIES
IN AMERICA
FITZGERALD MFG. Co.
FACTORY No. 1
PLANT No. 1
TORRINGTON, CONN.
COPPER ASBESTOS GASKETS
AUTOMOBILE & MOTORCYCLE HORNS
BATTERY CONNECTORS AND
CABLE TERMINALS OF ALL KINDS
FORD CAR ELECTRIC LIGHTING
OUTFITS
STANDARD SPECIALTIES IN STOCK
LINERS & OTHER LIGHT STAMPINGS
SPECIAL SPUN WORK TO ORDER.
ELECTRIC PUSH BUTTONS
FORD IGNITION
COMPLETE GASKET SETS FOR FORD CARS
PUMP HOSE BAND
FACTORY No. 2
PLANT No. 2
WINSTED, CONN.

NEVER-LEAK
Cylinder Head Gaskets
STANDARD THROUGHOUT THE WORLD

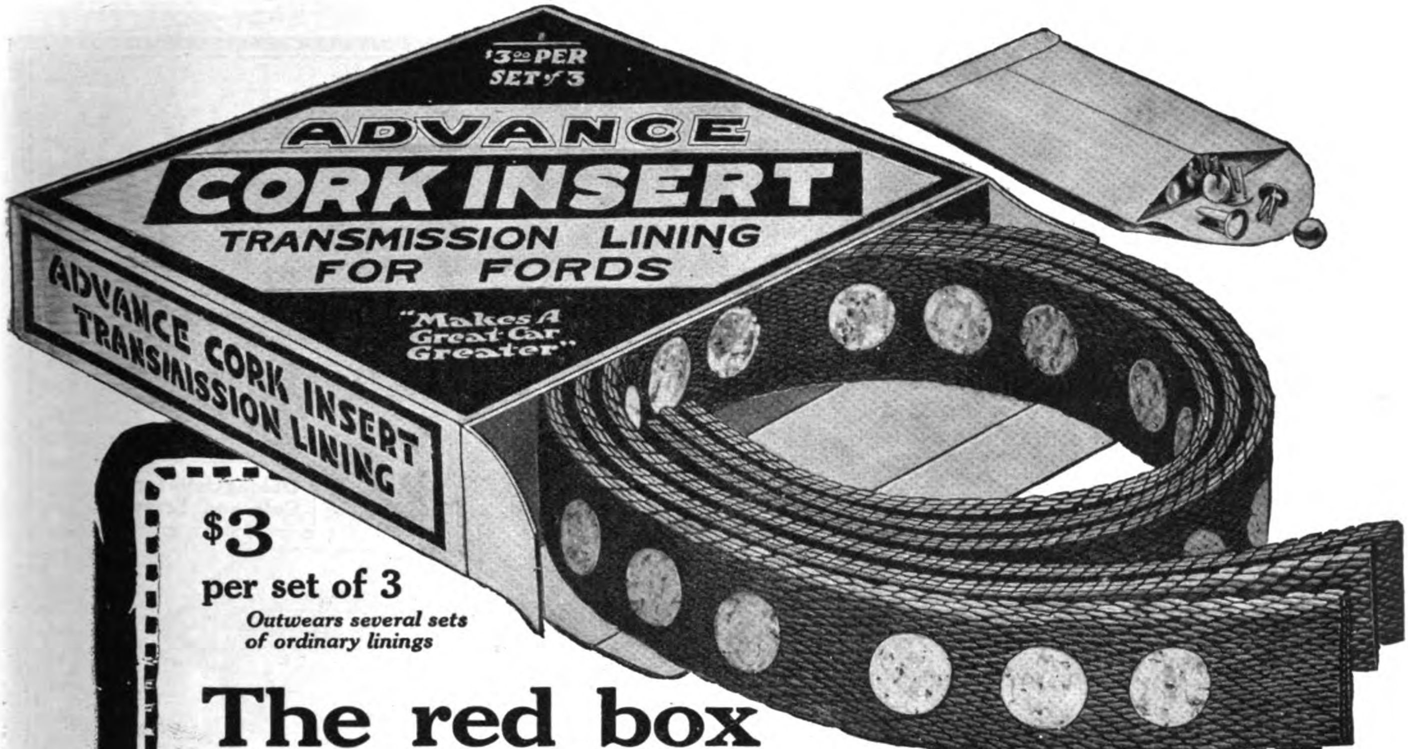
We carry in stock and can make prompt shipments of cylinder head gaskets for use on the following automobiles:

- Briscoe 1917
- Buick 1914
- Buick 1917
- Cadillac Eight
- Chevrolet
- Chalmers 6-30
- Crow Elkhart
- Dodge
- Dort
- Enger
- Grant Six
- Hupmobile
- Hudson Super Six
- Interstate
- Kissel Six
- Kissel Twelve
- Maxwell
- Monroe
- Mitchell
- Samson
- Vim
- Metz
- National
- Oldsmobile 1914
- Oldsmobile 1917
- Overland Model 75
- Overland Model 83
- Overland Model 90
- Oakland Six
- Oakland Four
- Packard Twin Six
- Paige 6-38
- Paige 6-46
- Pathfinder Twelve
- Pullman
- Republic
- Saxon Four
- Saxon Six
- Scripps Booth 1917
- Scripps Booth 1915
- Velie
- Cole Eight

Write for discount XXI

FITZGERALD MFG. CO.
MAIN OFFICE TORRINGTON, CONN.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)


$3.00 PER SET of 3
ADVANCE
CORK INSERT
TRANSMISSION LINING FOR FORDS
"Makes A Great Car Greater"
ADVANCE CORK INSERT TRANSMISSION LINING

$3
per set of 3
Outwears several sets of ordinary linings

The red box identifies the genuine

CORK INSERT

Transmission Lining for Fords

The success of Cork Insert has resulted in *inferior* imitations. Some imitate the name, some the idea, some the box. BE SURE THAT YOU HANDLE THE GENUINE. It's the lining your customers want. The lining that will MAKE GOOD for them. The lining that will hold their good will for you.

We warn you especially against lining in which metal is used. It not only causes chattering but particles of metal worn off by the friction are apt to cause short circuits.

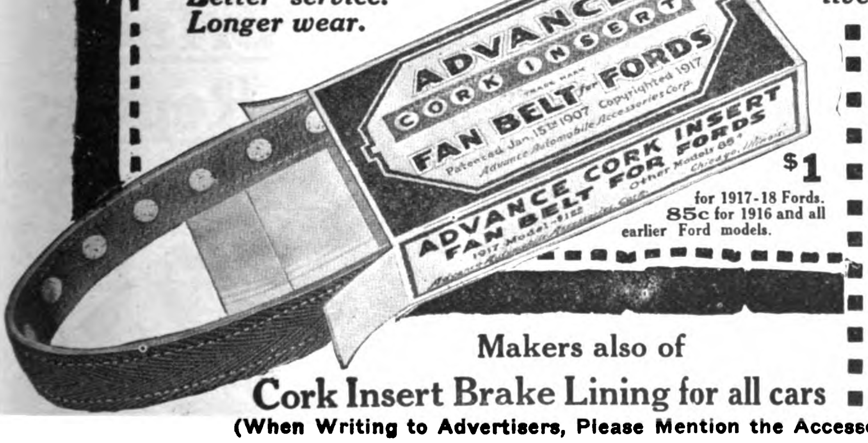
Cork Insert has made hundreds of thousands of dollars *extra* profits for the dealer by replacing sales of ordinary linings at low price and small profit. It has won a tremendous sale—it repeats and repeats for the trade—because it has MERIT.

Cork Insert can be *depended upon* to give smooth, even friction to the last mile of service — to end grabbing and slipping — to give SURE braking efficiency—and to last so long that it's cheapest in the long run.

Advance Automobile Accessories Corporation
Dept. H 3-1, 56 E. Randolph St., Chicago

Cork Insert Fan Belt for Fords keeps the engine cool by keeping the fan fanning. Better service. Longer wear.

Ask your jobbers' salesmen about Cork Insert, and you'll get an ear full about how it's the livest thing in the field.


ADVANCE
CORK INSERT
TRADE MARK
FAN BELT for FORDS
Patented Jan. 15th 1907
Copyrighted 1917
Advance Automobile Accessories Corp.
ADVANCE CORK INSERT FAN BELT FOR FORDS

$1 for 1917-18 Fords. **85c** for 1916 and all earlier Ford models.

CONVENIENT ORDER BLANK
Fill it out and goods will be delivered promptly through your jobber

Advance Automobile Accessories Corp.,
Dept. H 3—1, 56 E. Randolph St., Chicago
Enter our order for

[ ] doz. sets Cork Insert Transmission Lining for Fords
[ ] doz. Cork Insert Fan Belts (for 1917-18 Fords)
[ ] doz. Cork Insert Fan Belts (1916 or earlier Fords)

Name..

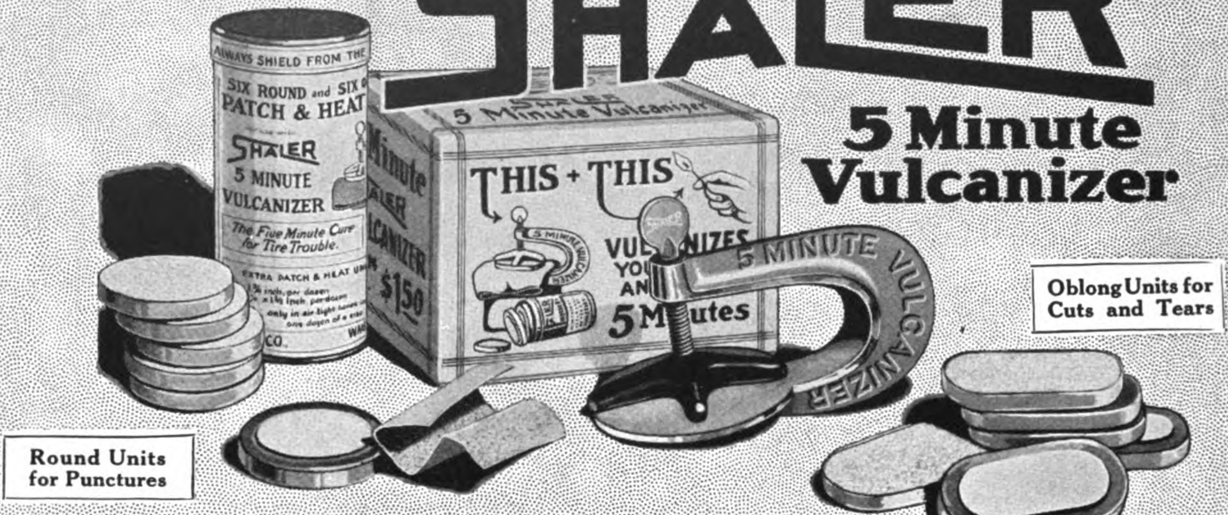
City...State....................

Makers also of
Cork Insert Brake Lining for all cars

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

SHALER

5 Minute Vulcanizer


ALWAYS SHIELD FROM THE
SIX ROUND and SIX
PATCH & HEAT
SHALER
5 MINUTE
VULCANIZER
The Five Minute Cure for Tire Trouble.
5 Minute Vulcanizer
THIS + THIS
VULCANIZES YOU AN 5 Minutes
$1.50
5 MINUTE VULCANIZER
Oblong Units for Cuts and Tears
Round Units for Punctures

Mends Tubes in 5 Minutes

Complete (With 12 Patch & Heat Units) $1.50

The Vulcanizer, 6 Patch and Heat Units of round shape for punctures and 6 of oblong shape for long cuts and tears are included in the outfit. Each unit is complete—ready to use. No gasoline, acid, cement or flame required.

The Patch and Heat unit is placed over the puncture—the vulcanizer clamped in position and a match applied. *In 5 minutes* you have a perfect, lasting, "feather-edge" repair.

The SHALER 5-Minute Vulcanizer sells itself. You only need to place the display case on your counter or in your window.

The 12 Patch and Heat Units that go with the outfit are soon used up—and the motorist comes back to you for more—at 75c a dozen.

This repeat business pays you a good profit and brings motorists to your place regularly—who will also buy other goods!

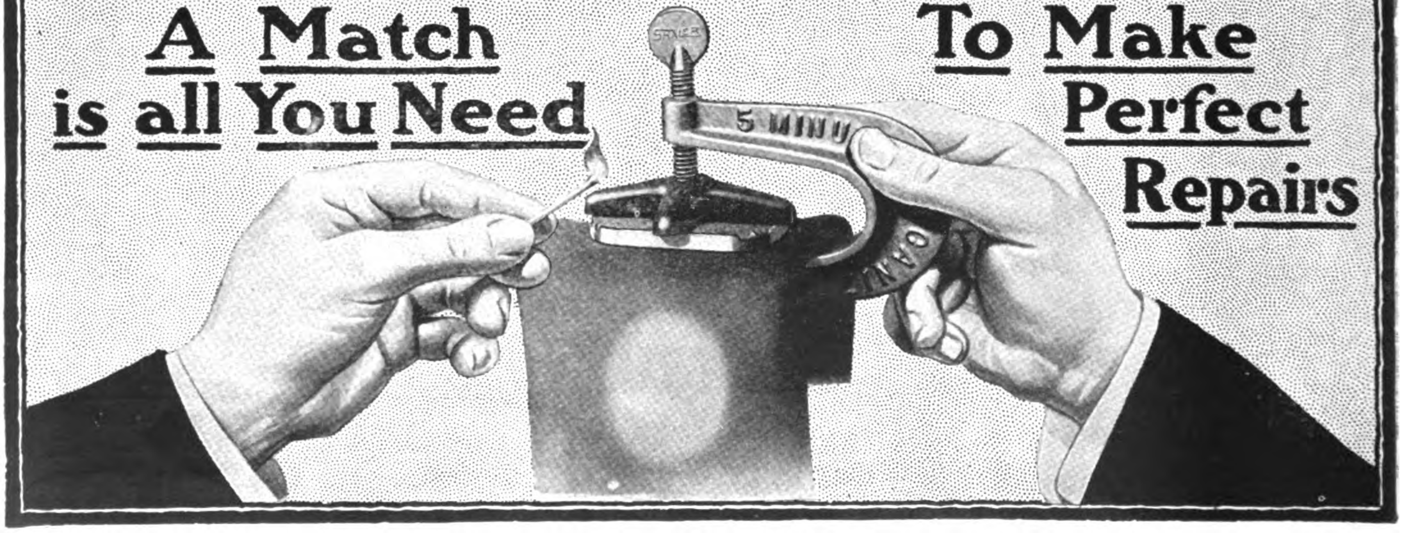
Place Your Order With Your Jobber NOW!

Don't delay! The enormous demand for SHALER 5-Minute Vulcanizers has exceeded our factory capacity to make deliveries. We are building a large 3-story addition to our plant—but to make sure of prompt shipments—place your order with your jobber now—specifying date of shipment desired.

Catalog describing the complete line of SHALER Vulcanizers for Motorists and Tire Repair Shops—Sent FREE on request.

C. A. Shaler Company, 255 Fourth Street, Waupun, Wis.

A Match is all You Need To Make Perfect Repairs


SHALER
5 MINU
CANI

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., AUGUST, 1918 No. 4

War Industries Board and Representatives of Automobile Manufacturers Make Agreement For Curtailment

During the Last Six Months of the Present Year No Manufacturer Shall Produce More Than 25 Per Cent of the Output of His Factory For the Year of 1917. Board Will Aid In The Liquidation of Unfinished Stock In Makers Hands and Manufacturers Are Asked to Limit Their Purchases of Materials, Equipment and Supplies to Amount Necessary to Match Up These Stocks.

Through an agreement between the National Automobile Chamber of Commerce and the War Industries Board, the production of passenger automobiles for the current six months ending Dec. 31, 1918, will be cut immediately, with a maximum output limited to 25 per cent. of the total number of cars produced in 1917.

No announcement was made as to the basis on which manufacturers would operate after that date, but the letter which set forth the plans for the current curtailment repeated the request made some time ago by the War Industries Board that all car manufacturers should get on a war work basis before the end of the year.

The letter was signed by Alexander Legge, vice chairman of the War Industries Board; J. L. Replogle, director of steel supply, and George N. Peek, commissioner of finished products of the board. It declared that, on the basis of reports furnished by automobile manufacturers, the stocks of raw and of semi-finished materials aggregated in value approximately $150,000,000, and were greatly unbalanced and cannot be liquidated until "matched up" with other materials in the manufacture of cars. In part the letter was as follows:

"Supplementing our letter of the 9th instant, we beg to advise that we have now received most of the reports embodying the data and information which we requested you to furnish us and have given those reports careful study and consideration. From them it appears that the stocks of raw materials and of semi-finished materials in the hands of manufacturers of passenger automobiles, while large, are greatly unbalanced, with the result that these large stocks, aggregating approximately $150,000,000, cannot be liquidated until they have been "matched up" with other materials necessary to manufacture the completed cars.

"The conclusion has been reached that it is in the public interest, as well as of your industry, that it be assisted as far as practicable, without interfering with the war programme, in the liquidation of its stocks now on hand; and to that end the priorities division of the War Industries board will accord a degree of preference designed to accomplish this result, to all manufacturers of passenger automobiles who will subscribe to a pledge to be prescribed by the priorities commissioner embodying, in substance, the following:

"That the manufactory will limit its purchase of materials, equipment and supplies to such as are absolutely necessary to match up its stocks now on hand.

"That its production of passenger automobiles and all repair parts therefor shall not for the six months ending with Dec. 31, 1918, exceed 25 per cent. of its production for the calendar year 1917.

"That it will conserve and economize in every possible way its stocks of iron and steel, and their products now in its hands, or that may come into its possession, and will release on request of the War Industries Board to such other manufacturer of passenger automobiles as may be designated by the said board such of its stocks as can be utilized by such other manufacturer and which are not required by it for either the limited production above specified or for war work.

"That it will from time to time render such reports of its activities, under oath or otherwise, as may be called for by the War Industries Board.

"The War Industries Board will, in carrying into effect the terms of the pledge herein provided for, use as a basis, as far as applicable, the sworn reports recently rendered it in pursuance of its request.

"In justice to the passenger automobile industry we feel again impelled, as the situation appears to us now, to frankly repeat our statement to you of Aug. 9, that the urgent war requirements for iron and steel are so great that the probability of your industry procuring iron and steel after Jan. 1, 1919, for the manufacture of passenger automobiles is so uncertain that we again urge the members of your industry to as rapidly as possible utilize your facilities for the production of direct and indirect war requirements, not only in the interest of the nation, but in the interest of your industry itself. In such effort the members of your industry will have the active and whole-hearted co-operation of this board."

Temporary Curtailment in Tire Production

Manufacturers Asked to Reduce Output of Casings and Tubes During August and September to 50 Per Cent. of Amount Produced in Same Period in 1917 To Conserve Stocks of Crude Rubber.

Curtailment of the amount of crude rubber available for manufacture into pneumatic automobile tires is indicated from the results of the meeting of all branches of the rubber industry held recently in New York, when representatives of the War Industries Board explained the situation as it affected their business and requested the manufacturers to cut their output of pneumatic tires for pleasure automobiles during August and September 50 per cent.

The meeting was held under the auspices of the Rubber Association of America, with B. G. Work, president of the B. F. Goodrich Rubber Co., presiding.

The allocations of rubber that have been in force, so far as importations and manufacturing are concerned, during May, June and July, are to continue for another 60 days, during which period it is expected that the manufacturers of rubber goods will succeed in placing such restrictions on their output as to comply with government requirements. Transportation of rubber have been restricted by the War Trade Board to 100,000 tons of crude rubber per year and during 1917, 160,000 tons were consumed, and the rate of consumption has grown so that more than twice that quantity could be used this year if supplies were available. Manufacture of pneumatic tires use about 70 per cent. of all rubber imported.

Government requirements have been responsible for the increase in the demand for tires and rubber. The number of orders for truck tires have been more than quadrupled. Under the plan for controlling the industry during August and September all goods ordered by the United States and the Allied governments will be manufactured in full and the remaining supply of crude rubber will be manufactured at the rate of three-eighths of consumption for the corresponding two months' period of 1917. The situation was summed up in a letter written by George N. Peek, commissioner of finished products for the War Industries Board, to Bertram G. Work, chairman of the war service committee for the rubber industry.

Following the meeting there was considerable discussion in the industry as to the effect of the new situation upon the smaller manufacturers, as in many cases with this class of producers the curtailment plan would mean a severe hardship if not entire cessation of production.

The following is the letter of the War Industries Board in part:

"Your industry has operated during the months of May, June and July on the plan of allocation of crude rubber under a limited tonnage arrangement with the War Trade Board and as additional information is necessary before finally determining upon the allocation for August, September and October (which information you are now compiling) it has been determined that for the months of August and September substantially the same arrangement and percentage of allocation will continue.

"Your industry should understand that the need of conserving shipping space is as great, or perhaps greater than when this matter was first taken up last April. We understand that while approximately 25,000 tons were licensed for import during the months of May, June and July (although considerably more than this has been received), approximately 50,000 tons will have been consumed by the industry. It is obvious that something radical must be done at once to curtail the consumption of rubber and we feel sure we may rely upon the support of the industry in taking such immediate steps as may be necessary to conserve the present stocks of rubber now in the country and those due to arrive.

"The government departments are making every effort to determine requirements of crude rubber for essential war and business purposes, and as soon as this information is at hand steps will be taken to insure the import of sufficient rubber to meet those requirements.

"As a means of conserving the stocks of crude rubber now in the country, your committee has suggested curtailment of the production of pneumatic automobile tires and tubes during the months of August and September, and we request you

"(a) To pledge the manufacturers of pneumatic tires and tubes to restrict the production in tonnage of rubber consumed and in numbers of casings and tubes to the extent of 50 per cent. of the production for the corresponding months of August and September of last year. But in no event shall the manufacture of pneumatic casings and of tubes during the month of August, 1918, or the month of September, 1918, exceed 50 per cent. of the monthly average for the year 1917 both as to amount of rubber used and number of pieces produced.

"This restriction is exclusive of government business.

"(b) That you carefully consider restricting the manufacture of all other articles involving the use of rubber, as every possible saving should be made.

"You are thoroughly familiar with the industry to which we look to patriotically and conscientiously cut out the consumption of crude rubber at every point where it can be done without injury to the nation's welfare.

"A curtailment such as mentioned above, in the production of pneumatic tires and tubes and other articles, will not accomplish the desired results unless some plan is evolved for limiting and regulating the use of motor vehicles and we expect the use of rubber tires will be restricted except for actual war and essential business purposes. We are not at liberty at this time to announce our plans for accomplishing this purpose, but will do so in the near future.

"Every necessary step should be taken to discourage and prevent hoarding of the finished product by manufacturers, wholesalers, dealers and consumers, and we ask you—

"(a) To evolve some plan, and put it into effect, which will accomplish this end, and to see to it that if any one of these factors are guilty of hoarding, that steps be taken to prevent their securing additional supplies:

"(b) That advances in prices be prevented.

"We look to you to see that this is accomplished.

"Before arrangements are concluded for the importation of rubber after the month of September, with your co-operation we expect to evolve definite plans which will accomplish the purposes we are after; i. e., the conservation of every foot of shipping space possible by the conservation and restriction of the use of rubber.

"We ask that you facilitate your final arrangements for co-operation with the conservation division in making such changes in the manufacture and distribution of your product as will result in the conservation of rubber during the period of the war.

"We anticipate your complete co-operation in all of the above matters and assure you of our desire to see that the industry is provided with the necessary raw materials to take care of the war and essential civilian needs as soon as that can be determined, and give you our further assurance that we desire to curtail the industry only insofar as it may become necessary to meet the war needs."

MANY ADDITIONAL MILES ON RETREADED TIRES.

"If motorists were better acquainted with the advantages of having their tires retreaded when not worn through the carcass, many miles would be added to tire life," stated Mr. Dwyer of the Wakefield Tire Co., Wakefield, Mass.

"A retread can greatly extend the usefulness of a tire carcass that has had good care, but a tire that has been run 'soft,' overloaded or tread cut, or mistreated in other ways, cannot profitably be so repaired.

"But where the tire has had good care and the fabric is uninjured, a retread is a profitable investment. Many thousands of miles are added to tire life in this manner. A new tread can be built into a tire that will greatly increase its length of service.

Vulcanizing treads on used tires has reached so great a degree of perfection that even racing drivers are using retreaded tires. In the past racing drivers have never used tires that have undergone any kind of repairs—only new tires were considered safe. But that retreaded tires are a success on the race track is abundantly proven in the experience of Louis Chevrolet, who during the past winter season won several races on the western coast on retreaded tires.

"In the interest of conservation every motorist should first consider the advantages of a retread before sending to the scrap heap his old tires. The charge is about one-third the cost of new tires with a guarantee of 3000 additional miles."

QUESTION OF AUTOMOBILE TAX STILL UNDER DISCUSSION.

What final form of taxing the motor car owner will be decided upon by Congress it is not possible as yet to predict. All revenue measures originate in the House of Representatives and then go to the Senate, which may disagree radically with the House's interpretation of the situation. Then the measures passed by the two branches go to the conferees.

President David Jameson of the American Automobile Association recently presented to the two committees the case of the car owner in communications to Chairman Kitchin of the House Ways and Means Committee and to Chairman Simmons of the Senate Finance Committee Mr. Jameson commented upon the fact that the motorist now receives extensive taxation attention from the several states, referred to the certainty that any impost on new cars would be passed along to the consumer, and contended that any charge on the original cost of used cars would be manifestly unjust. Mr. Jameson asserted that it would be as fair to tax coal as gasoline, since both are fuel producing quantities.

Several days after the filing of Mr. Jameson's communication the House committee announced that it had decided to base the Federal tax on cars in use on a horsepower basis instead of on the original cost.

Harry Dunn Heads Rubber Section of War Board

Head of Fiske Rubber Company Will Supervise Country's Rubber Industry.

Harry T. Dunn, president of the Fiske Rubber Co., Chicopee Falls, Mass., has been appointed head of the newly created rubber section of the War Industries Board. This position will require most of his time and while he will not give up his duties with the Fiske Rubber Co., he will make his headquarters at Washington.

E. H. Broadwell, vice president of the Fiske Rubber Co., has succeeded Mr. Dunn as a member of the War Service Committee of the Rubber Association of America.

Harry T. Dunn, President of the Fiske Rubber Co.

HUBBARD ASSORTED SPRINGS FOR GARAGE AND REPAIR MEN.

Every garage and repair man finds a constant demand and need of small springs, cotters, washers and other similar parts. Because these parts are seemingly unimportant he neglects to provide an ample stock with the result that much time and labor is wasted and often a makeshift repair or adjustment is turned out, which later costs him prestige as well as money.

After studying the needs of this branch of the automobile trade the M. D. Hubbard Spring Co., Pontiac, Mich., have made up an assortment containing a large variety of springs that can be used for purposes of this kind, either as they are made or by slight alteration. This assortment contains 16 pounds of springs and sells for $2, which is a lower price per pound than the average assortment, as it contains a much larger quantity. It is sent on approval or subject to inspection to responsible buyers or to anyone on deposit subject to return. When sent on approval the buyer is asked only to pay transportation charges one way in consideration of the privilege of inspection and acceptance or rejection.

PURITAN MACHINE ADDS BROC-ELECTRIC TO ORPHAN LIST.

The latest addition to the long list of orphan cars, of which the Puritan Machine Co., 10th and Lafayette Aves., Detroit, Mich., supplies parts, is the Broc-Electric, formerly of Saginaw, Mich. The entire stock has been removed to Detroit.

JORDAN MOTOR CAR CO. PAYS 8.6 PER CENT. DIVIDEND.

The Jordan Motor Car Co. on Aug. 1 paid a dividend of 8.6 per cent. to the holders of the original Jordan preferred. Jordan production, which was originally limited to 2000 cars annually, has proceeded at that rate since the first cars were shipped, yet on Aug. 1 the company was several hundred orders behind in deliveries. The company has been turning over its capital practically every 30 days, and in the July period the earnings were at the annual rate of 160 per cent. on the capital invested.

GASOLINE PRODUCTION IS GREATER THAN LAST YEAR.

The average daily production of gasoline during May of this year was 10,302,942 gallons, an increase of 523,070 gallons per day over April. The figures just issued by the Bureau of Mines also shows that the stock of gasoline on hand on the last day of May was 460,637,479 gallons, which is less than was on hand on April 30, when the stock was 509,197,134.

The production of crude oil in May totaled 28,510,698 barrels, giving a daily average of 919,700 barrels. The stock of crude on hand on May 31 was 11,824,632 barrels, as against 12,600,062 barrels for April 30.

ROEDDING SIGNAL TO BE PATENTED THROUGHOUT WORLD.

K. G. Barkoot, distributor of Roedding Signal Tail Light, has made application for patents on the Roedding signal light in all of the main countries of the world and has received advices of the allowance of patents in several of these with notification of the receipt of the claims in all others Patents will be issued in one form and another in England, Australia, France, Belgium, Italy, Russia, Japan, Spain, Brazil, Argentine Republic, Chili and in South Africa. Three applications, one for trade mark, one for design and one for mechanical patent with three other protective patents have already been made and others will follow, as it is the intention of Mr. Barkoot to protect in every way and in every country the patents of Roedding.

Lower Tax Based on Horsepower is Proposed

Ways and Means Committee Changes Plan for Levying Against Automobile Owners.

The Ways and Means Committee of Congress have abandoned their plan to place a flat arbitrary tax on automobiles based on the original cost price and will incorporate in the revenue bill a tax based on the horsepower of passenger cars and trucks. This will be levied as follows:

23 horsepower or less	$10
24 to 30 horsepower	20
31 to 40 horsepower	30
More than 40 horsepower	50

Under this tax the government will raise but $70,000,000 as compared with $100,000,000 under the first plan.

Missouri Permits the Driveaway of Automobiles

The National Automobile Dealers' Association has again been instrumental in overcoming difficulties of automobile dealers—this time in Missouri. Recently several dealers were held up at Shelbina, Mo., by an over-officious night watchman. The dealers in question were not only delayed, but were fined. The national association was immediately appealed to and the president at once communicated with Governor Gardner.

The governor immediately took the situation up with the secretary of state, John L. Sullivan, with the suggestion that matters be clarified. Mr. Sullivan advised the president's office under date of July 23 that he had addressed communications to the prosecuting attorney of Shelby county and the justice before whom the dealers were prosecuted at Shelbina, calling their attention to a request from Washington that dealers be allowed to drive cars in trains of 50 if necessary, displaying only the one set of plates—one attached to the front of the first car and the other to the rear of the last car.

Mr. Sullivan further advised that in accordance with the practise of a number of other states of the Union (which was due to activities of the national association) it was the desire of his department that dealers be allowed to travel unmolested when displaying the dealers' tags as above described. Mr. Sullivan advises he has replied to inquiries throughout the state that dealers in transit be not disturbed, and it is to be expected that no further inconvenience will be experienced in this connection.

ALL SPACE FOR N. A. A. A. J. SHOW IN CHICAGO SUBSCRIBED.

At the meeting of the show committee of the National Association of Automobile Accessory Jobbers, at which the drawings for space for the forthcoming exposition to be held under the auspices of the organization, it was announced that all the space was substantially subscribed for on both floors of the Temple in Chicago, with the exception of about 20 spaces, and this allotment did not include a number of applications that the committee was advised were in the mails.

Alarming Theft Of Automobiles In St. Louis

Over 1095 Cars, Valued at $3,000,000, Stolen Since First of Year, and 303 Not Recovered.

The police department of St. Louis, Mo., has added 28 men to its automobile squad, making 35 in all, who are devoting their entire time to suppress the alarming growth in the theft of cars. Since the first of the year 1095 cars were stolen, of which number 303 have never been recovered.

LEATHER SUBSTITUTES GAIN WIDESPREAD POPULARITY.

Leather substitutes are materials produced from raw cotton, and they so closely resemble the real leather that few experts can detect the difference.

On account of climatic conditions in certain sections of the United States, particularly the South, leather upholstery on furniture and automobiles is not as satisfactory as the materials now being used as substitutes for leather because of the formation of what is known as "mould," a white fungus growth, which destroys the beauty of leather.

The formation of mould on leather causes a clouded, spotted surface, that finally destroys its texture, thereby rendering useless chair, couch or automobile upholstery, and necessitating new coverings and a continuous outlay of money.

The day of the leather substitute is here and here to stay, its many advantages assuring its success. When labor was cheap and plentiful, keeping this mould wiped off leather goods in damp climates was a possible undertaking, but now that help is expensive and scarce, a labor saving material must be used. The value of the substitutes for upholstery is therefore obvious as they do not mould, fade or deteriorate. They have the further virtue of being water, grease and vermin proof.

In addition to the superior wearing qualities of pyroxylin coated substitutes in certain climates, there is just now a strong reason for using them in every part of the country. Our government has asked that we use substitutes of all kinds whenever and wherever possible. At this time there is a shortage of leather, which is indispensable in the making of shoes, belts, harness, puttees and other necessary articles for the boys who are fighting for us that we may enjoy the liberty of a world wide democracy. Now that our country is facing this leather shortage let us respond to the call "Use Leather Substitutes."

By putting before the public the value of leather substitutes as proof against climatic conditions, and by pointing out the duty of truly patriotic American citizens to conserve leather, the furniture and automobile manufacturers can render valuable service to their customers and to the country.

"GETTING MORE MILES FROM YOUR GASOLINE."

The above caption is the title of a booklet issued by the Eccolene Co., Detroit, Mich., manufacturers of Eccolene, a preparation which is mixed with gasoline to increase its qualities of combustion and improve engine efficiency by the practical elimination of carbon.

The manufacturers made a test of Eccolene, using 10 new six-cylinder cars, which left the factory at Detroit and were driven to New York City. At Bellevue, O., Eccolene was added to the gasoline and used for the remainder of the trip of 651 miles. The results of the test are presented as follows:

From April 24, 1918, 8 a. m., to April 26, 1918, 9 p. m.:

ECCOLENE TREATED GASOLINE.

Car No.	Gasoline Consumed	Miles Per Gal.
1	59½	12.6
2	50	15.6
3	55	13.7
4	53	14.2
5	51	14.8

Average miles per gallon............14.2

Gasoline consumed..........268½ gallons

CARS USING PLAIN GASOLINE.

Car No.	Gasoline Consumed	Miles Per Gal.
6	75	10
7	62½	12
8	56	13.4
9	68½	11
10	64	11.5

Average miles per gallon..........11.5

Total gasoline consumed....326 gallons

Gasoline saved on trip by use of Eccolene—58 gallons.

Increased mileage—23.4 per cent.

Cost of Eccolene, 3 1/3 quarts at $7 per gallon—$5.83.

Saving in gasoline, 58 gallons at 26¼ cents—$15.25.

Saving less cost of Eccolene—$9.42.

Piston of cars using Eccolene were almost free from carbon; the others were considerably carbonized.

The Edward A. Cassidy Co., of New York city, has been appointed distributors of Eccolene for the entire country.

Increasing Sales of Used and Commercial Cars

Bishop, McCormick & Bishop, Inc., Measure Used Car Values by Systematic Methods—Their Commercial Car Department Developed Along Manufacturing Lines—Twenty-Five Per Cent of Their Total Retail Sales Is From This Source

THE used car department of Bishop, McCormick & Bishop, Inc., is conducted along the same broad lines of modern merchandising methods employed in their new car department. These methods include: First, the proper appraisal of the value of the used car, which they consider the backbone of the worth of a used car. The appraisal form (Fig. 1) is printed herewith and it can be seen that it includes all the essential details upon which to base a fair value of the used car.

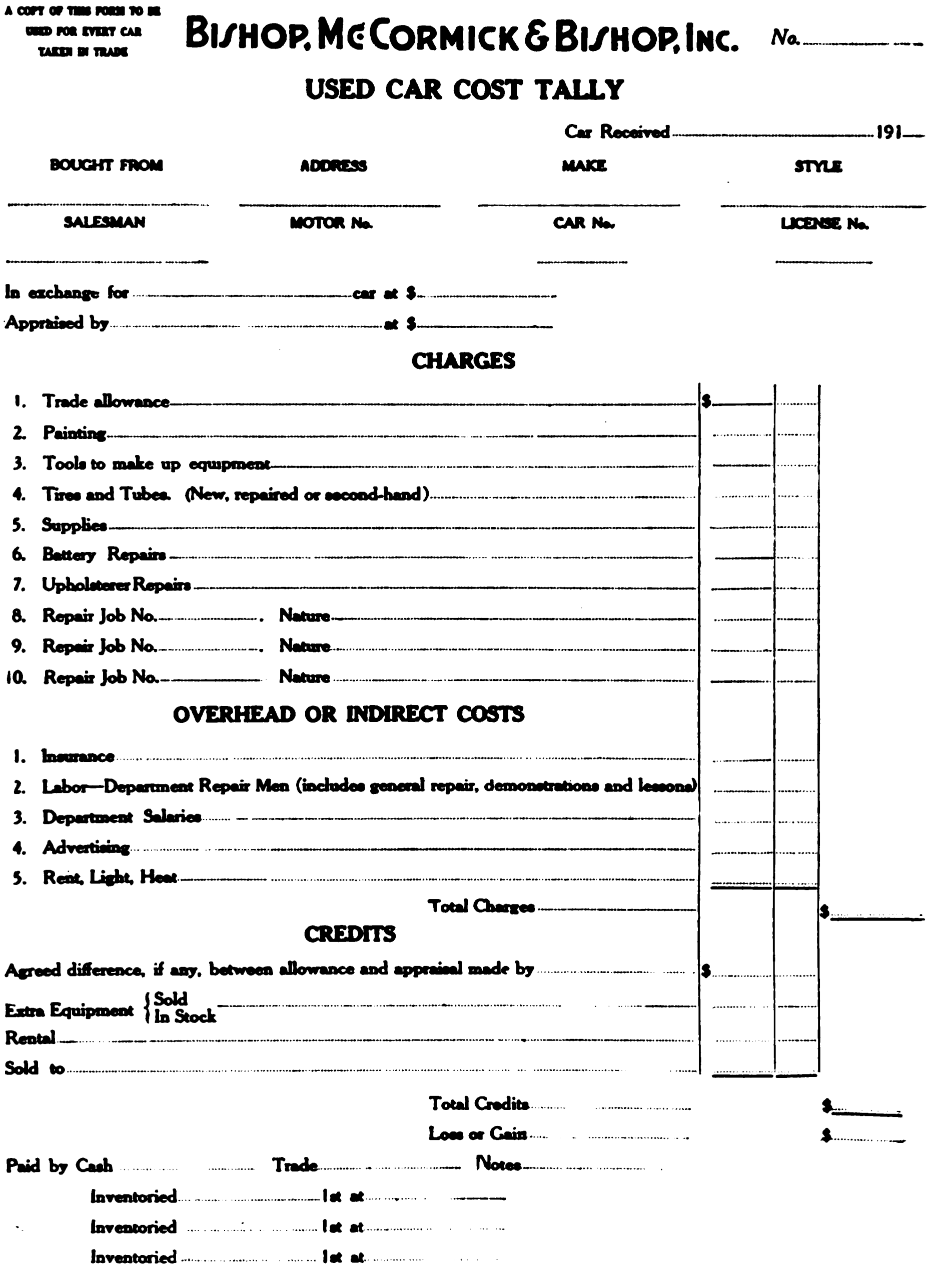
Their method of appraising the value of a used Dodge car is to establish, first of all, the resale value of used Dodge cars of different serial numbers. These serial numbers usually follow very closely any radical changes or improvements that have been made to the car since it was first offered to the public. They have found, from experience, that a system of this kind is necessary in view of the fact that Dodge Brothers do not manufacture a yearly model of series; and while they set the general principle that any used Dodge car, in good condition, is worth as much as any other used Dodge car in the same condition, nevertheless, they recognize the fact that the general trade is influenced to a degree by changes in style and construction, and that is their only reason for the adoption of these serial number divisions.

Having established the price at which the car shall be sold, and having established, through their records of past years, the average selling cost, the average advertising cost, the average selling expense (based on salaries or commissions paid) and the average storage expense per car, they are then in a position to tell very closely what their total sales cost will be on the car. Then they have the used car tested by their service department, to find out what their standard charge will be for putting the car in good running condition. Having found out what this charge will be they deduct from the sales price what they know they can get for the car, the sales cost, repair cost and the margin of at least $25 for contingencies. The amount left after these deductions have been made is the allowance given to the customer.

It is quite apparent how valuable their standard practise repair system is in handling used cars. If their repair department sets the cost of $50 to put the car in condition, they know that the charge will not exceed $50, and there is no element of uncertainty in this charge, as there likely would be if only an estimate of the cost of overhaul were given. Since they have made it a practise for the service department to charge every other department the same rates for work, which are charged to the retail customers, there is no likelihood of this work being slighted in any respect by the service department, and the used car department has the same "come-back" on the service department if the work is not properly done, which a retail customer would have.

The form shown in Fig. 2 shows the general condition of the car in detail when its value was appraised. This form is printed on a card and is used where a customer receives an appraisal on his car, but wishes to continue to use it until his new car is delivered to him. The careful checking over of all the items on this card makes it absolutely certain that the car will be turned into them in the same condition it was in when the appraisal was made.

The used car record sheet (Fig. 3) permits of a complete and definite record being kept of all the expense items that entered into the sale of any particular used car, so that it is absolutely certain at the start that a car will not be sold except at a price that will cover all the items of expense plus a small margin of



A COPY OF THIS FORM TO BE
USED FOR EVERY CAR
TAKEN IN TRADE

BISHOP, McCORMICK & BISHOP, INC. No.

USED CAR COST TALLY

Car Received 191

BOUGHT FROM	ADDRESS	MAKE	STYLE
SALESMAN	MOTOR No.	CAR No.	LICENSE No.

In exchange for car at $

Appraised by at $

CHARGES

1. Trade allowance $
2. Painting
3. Tools to make up equipment
4. Tires and Tubes. (New, repaired or second-hand)
5. Supplies
6. Battery Repairs
7. Upholsterer Repairs
8. Repair Job No. Nature
9. Repair Job No. Nature
10. Repair Job No. Nature

OVERHEAD OR INDIRECT COSTS

1. Insurance
2. Labor—Department Repair Men (includes general repair, demonstrations and lessons)
3. Department Salaries
4. Advertising
5. Rent, Light, Heat

Total Charges $

CREDITS

Agreed difference, if any, between allowance and appraisal made by $

Extra Equipment { Sold / In Stock

Rental

Sold to

Total Credits $

Loss or Gain $

Paid by Cash Trade Notes

Inventoried 1st at

Inventoried 1st at

Inventoried 1st at

Fig. 1—Used Car Appraisal Form.

Know The Facts And The Truth

The Golden Rule of
CLIFFORD M. BISHOP,
General Manager
Bishop, McCormick & Bishop, Inc.

CLIFFORD M. BISHOP.

If the desire is to build up a business, not a "game," it is essential that a dealer should establish certain principles and practises for his business, and that he should gather about him men of honesty and character, who will carry out these principles and practises.

Not very long ago it was generally thought necessary to have a service manager who was slippery and had the ability to "jolly" and "get by" with the customers. Most of us have now found that anyone who can "get by" with the customers can quite likely "get by" with the boss, and, therefore, the introduction of men of this type into a business is quite certain to ruin its business character.

We have found that it is essential to know the truth and to face it; so we have never made it a practise to severely criticise anyone who has made a mistake, provided he tells the truth about it. Knowing the real facts is half the battle in being fair to yourself and your customers. Therefore, there should be no place in any organization for a liar.

I think the average dealer is likely to make the mistake of treating his business as a cheap business, in the sense that it is not able to support sufficient men of good character and ability at satisfactory salaries. If a dealer believes he is engaged in a restricted business, then his case is truly hopeless, for I sincerely believe that there is no piece of territory of any size that has a definite and fixed limit of sales for any particular make of standard automobile, especially in the low and medium priced classes. Therefore, it is ridiulous for any sales agency to figure that its sales possibility will not permit of its employing men big enough and broad enough to get the biggest possible returns in the right way from the territory covered. There is always a definite, proper and certain profit from the intelligent use of the right kind of man power.

It is also the firm conviction of our organization that every major department of a business should be a paying department. Sales can unquestionably pay, service can be made to pay well and will pay increasing returns as time goes on; the parts department cannot help but be profitable, and even the used car department can at least pay its way. This is all, of course, predicted on the fact that there must be a man at head of each department capable of handling it.

A business based on character is surprisingly easy to systematize. The practise in each department can be standardized and sufficient leeway can be given to each executive to insure that the man responsible for the direction of the entire business is not spending nine-tenths of his time on the petty details of the business. In other words, the clear establishment of authority and responsibility should leave some one in the business free of petty worries to think about it as a whole and to prepare for any future conditions that the business is likely to meet. This man will give very little thought to the present; his thinking will be aimed a month, two months, or even three months ahead, and, in this way, he will guide the business so to avoid the shoals and reef.

C. M. Bishop

profit. Consequently, if each transaction is a profit, it is reasonable to assume that the total results of the department will net a profit.

Another form of their system illustrated (Fig. 4) is a card index that enables them to keep a record of their used car stock. It contains a recapitulation of all the essential details and is the final analysis of the used car stock taken from the other records.

Used Car Customer Receives Same Treatment.

Bishop, McCormick & Bishop, Inc., admit that their used car system would not work quite so well with used cars of other makes that they have to take in on the trading basis, but they also contend that these cars cannot be sold on the same basis that they sell used Dodge cars; therefore, the same principles will not apply to used cars of other makes.

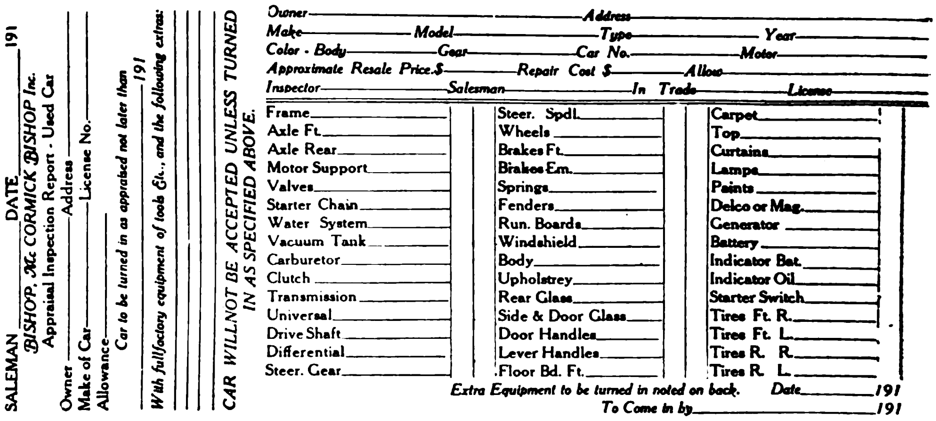
In handling of used cars of other makes they do not undertake to repair them. They will make minor adjustments and these are generally made by two or three mechanics who are permanently attached to the used car department. They will clean the cars and even paint them, but they are invariably sold "as is." Their allowances on used cars of other makes are much lower than the owners could receive by taking them back to the agency from whom they purchased them. They have found that the quality of the Dodge car as maintained by the efficiency of their service department, has placed them in a position to secure used car business on a basis that makes each transaction profitable, although their allowance figures are invariably lower than those of their competitors.

They never sell a used Dodge car until it has been placed in excellent mechanical condition, and they never sell except at a price that bears exceedingly close relation to their new car price. Through the purchase of a used car from them the customer receives exactly the same treatment and the same facilities from their organization and plant as he would if he purchased a new car. He receives the complete driving course, has the privilege of taking the course on care and maintenance in the school, and he receives the same attention from the service department.

Their guarantee on used cars is liberal and includes the following points: 1—We guarantee that the value of each car is accurately represented by the price quoted. 2—That the condition of each car is exactly as represented. 3—That we will make minor adjustments which may be necessary, without charge, for a period of 30 days after delivery. 4—That we will take back any car within 30 days from date of delivery, at its sale price, minus a reasonable charge for use, in exchange for another used car or in part payment of a new car. Aside from the advantages of their educational department, they offer to purchasers of used cars free inspections, free advice and their flat rate charges for work. They also sell used cars on the easy deferred payment plan if desired.

A Side Street Advertised Into Prominence.

Their used car sales room is entirely separate from their new car sales room, being located at 1243 Fulton street. Although this is one of the most prominent business streets in Brooklyn, unavoidable circumstances compelled them to locate their main offices and new car sales room at 20 Halsey street. Here is a contrast of a less prominent location



SALEMAN DATE 191
BISHOP, McCORMICK BISHOP Inc.
Appraisal Inspection Report - Used Car
Owner Address
Make of Car License No.
Allowance
Car to be turned in as appraised not later than 191
With fullfactory equipment of tools Etc., and the following extras:
CAR WILLNOT BE ACCEPTED UNLESS TURNED IN AS SPECIFIED ABOVE.

Owner *Address*
Make *Model* *Type* *Year*
Color - Body *Gear* *Car No.* *Motor*
Approximate Resale Price.$ *Repair Cost $* *Allow*
Inspector *Salesman* *In Trade* *License*

Frame
Axle Ft.
Axle Rear
Motor Support
Valves
Starter Chain
Water System
Vacuum Tank
Carburetor
Clutch
Transmission
Universal
Drive Shaft
Differential
Steer. Gear

Steer. Spdl.
Wheels
Brakes Ft.
Brakes Em.
Springs
Fenders
Run. Boards
Windshield
Body
Upholstrey
Rear Glass
Side & Door Glass
Door Handles
Lever Handles
Floor Bd. Ft.

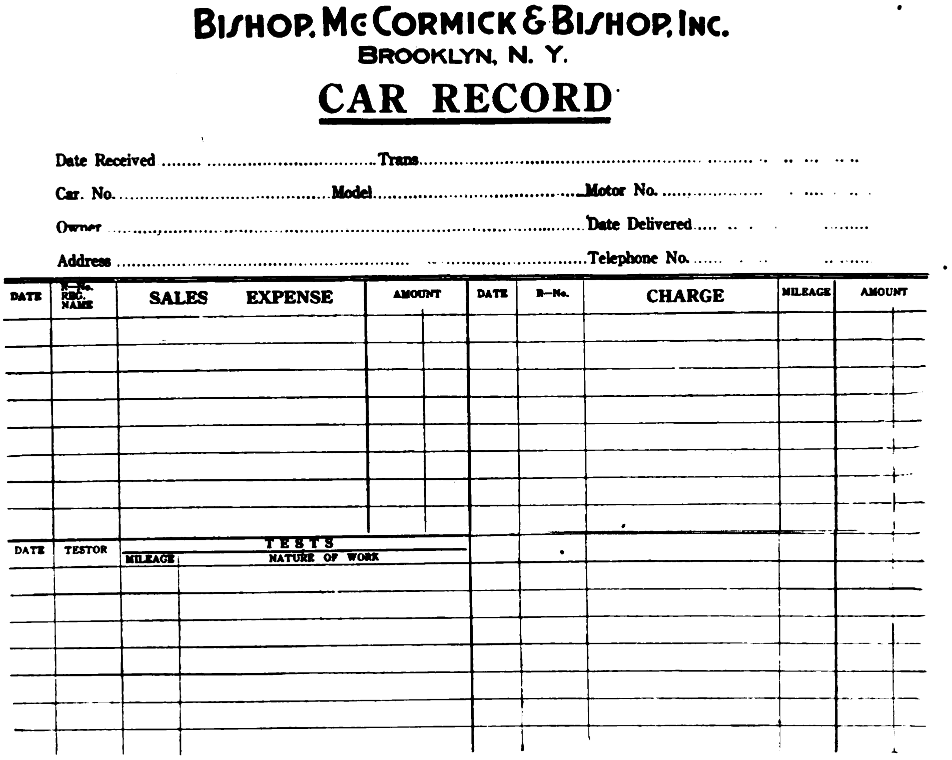
Carpet
Top
Curtains
Lamps
Paints
Delco or Mag.
Generator
Battery
Indicator Bat.
Indicator Oil
Starter Switch
Tires Ft. R.
Tires Ft. L.
Tires R. R.
Tires R. L.

Extra Equipment to be turned in noted on back. *Date* *191*
To Come in by *191*

Fig. 2—Form Printed on Card for Checking up Original Appraisal Details of Used Car When Machine Is Finally Turned in.

being well advertised and a more prominent location only advertised as the background of their business. This is not a strange phenomenon. It simply exemplifies the fact that good advertising made prominent even a remote location. At the front of their business on the side street is continually a scene of great activity. Advertising created it.

Mr. Clifford M. Bishop says in regard to their location: "Brooklyn has no main automobile street. Bedford avenue comes nearest to it today, but the opinion is not unanimous that it should be the automobile street; therefore, there has not been any central market place. Because in the earlier days a garage was thought exceedingly profitable, chance located us on Halsey street, off Bedford avenue, where there was a large interior lot available for the establishment of a garage. This chance location introduced two factors into our business which have had a great deal to do with its success: The first is, that being off the main street we could not very well afford to wait for our business to come to us, and so from the very beginning we learned to go to our business. The other factor resulted from the discovery that a garage was not at all the kind of business that we wanted to conduct, and, as our sales business grew, we eliminated the garage and established a service station, so that we wound up with our whole plant in a unit at a relatively low overhead expense."



BISHOP, McCORMICK & BISHOP, INC.
BROOKLYN, N. Y.

CAR RECORD

Date Received ....Trans..

Car. No.................................Model..................................Motor No. ....

Owner ....Date Delivered.......................

Address ....Telephone No. ....

DATE	R—No. REC. NAME	SALES EXPENSE	AMOUNT	DATE	R—No.	CHARGE	MILEAGE	AMOUNT
DATE	TESTOR	TESTS MILEAGE NATURE OF WORK						

Fig. 3—Record Form Covering Complete Costs of Handling a Used Car.

BISHOP, McCORMICK & BISHOP, INC.

No...........

USED CAR STOCK.

Make ....
Type ....
Model ....
H. P...
Car No.......................................
Motor No.....................................
License No...................................
Checked in by................................
Remarks: ....
Rec'd.............................. 191....
From ....
Address ....
Telephone ....
Trade For....................................
Salesman ....
Price ....
Checked out by...............................
....
....
....

Fig. 4—Card Index of Used Car Stock.

The Commercial Car and Truck Department.

As the territory controlled by Bishop, McCormick & Bishop, Inc., is located on an island, there was no chance for their having their territory for the sales of passenger cars extended. The reduction of the production of passenger cars, which considerably reduced their allotment for this year, compelled them to devise ways and means by which they could create a new branch of their business and thus be able to fill in the gap that the shortage of passenger cars had created.

They reviewed the situation that confronted them along these lines of analysis: They assumed, by way of comparison, that the normal sales possibilities of their territory were 1000 cars. Since their territory is located on an island it is not practical that their territory could easily be extended, nor is it likely that Dodge Brothers would allot any larger territory. The vital question to answer satisfactorily was: "What can we do to increase our business?" Their answer was to enter the commercial car field, and it was much more practical and easier for them to enter this field because they are large distributors of a one-car line, which enabled them to standardize their commercial vehicles on the basis of the Dodge chassis. Adopting and considerably concentrating a portion of their plant and organization on the commercial vehicle was practically the same as having an extension of their territory granted them. They contended that having a territory wherein the public is impressed with the quality of their passenger cars to acquire 1000 of them, it was reasonable to suppose that with the proper push and energy they could also sell 1000 commercial cars in the same territory without increasing their overhead expense to any extent. Here is where they were enabled to use their mechanical engineer, whose services had previously been used almost exclusively in their educational department, as instructor. Therefore it was a natural step to develop an engineering department, which they have found necessary and very conducive to the proper development of their commercial car line.

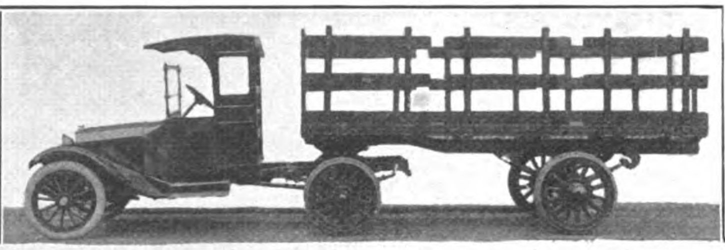
Dodge Brothers were already producing a commercial chassis of 1000 pounds capacity. With this unit as a starter and with the adaptation of the principle so clearly shown by the locomotive, of towing the load instead of carrying it, it was quite simple for Bishop, McCormick & Bishop, Inc., to develop a wide range of commercial models. There were two ways of doing it: One was by lengthening the commercial chassis so that it would take bodies the type of their undertaker's job and their ambulance, which do not usually carry loads of over 1000 pounds; and the other method, to develop heavy duty trucks by using Dodge Brothers' puller plan as the front or towing member and introducing a high class rear axle and truck frame for the truck part of the chassis. By balancing the load over the rear axle no additional burden was added to the front axle and the result was a remarkably serviceable, highly efficient and economical truck.

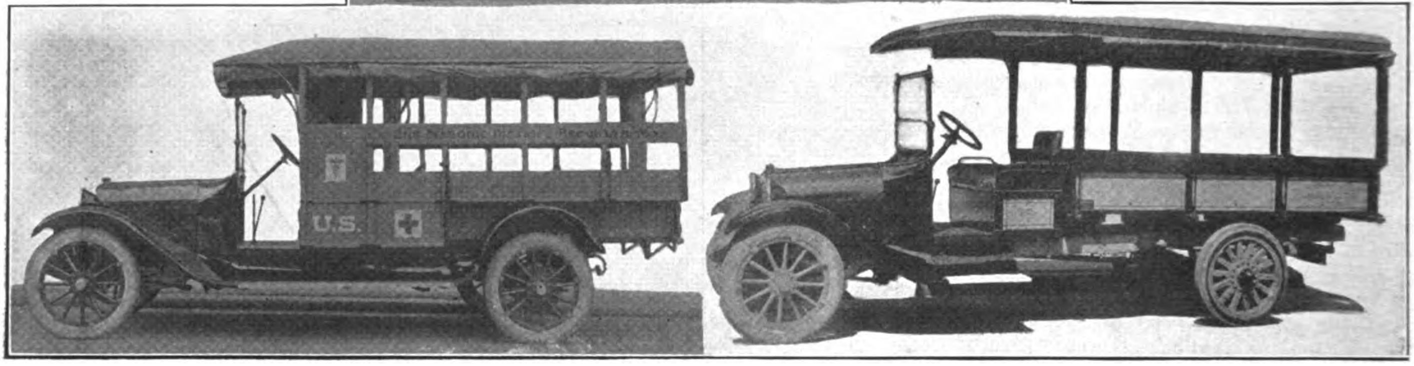
The engineering principle involved in their design of the extension of the Dodge chassis is exactly the same as that employed in balancing the load in a one-horse dumping cart. The load is balanced over the two wheels and the shafts rest lightly on the horse. By arranging the position of the rear wheel on the pulling truck they put 60 per cent. of the load on the rear axle and 40 per cent. on the front axle, which, in the case of a trailer, is the rear axle of the tractor. The construction of the tractor and truck are identical except that the tractor is a shorter wheel base in order to secure a shorter turning radius. By balancing the load they have made the deduction that a 1½-ton axle could be used on a three-ton tractor and a 2½-ton axle is perfectly suited to a five-ton tractor.

Types of Commercial Cars Developed.

They have developed the following types of commercial cars: One-half-ton truck, three and five-ton tractors, ambulances, taxicabs, combination hearse and casket car, hearse, seven-passenger funeral car, dumping coal truck, 10 different types of panel body jobs on the standard commercial chassis and 10 different types of truck bodies. All their various types of bodies are built under their own designs and directions.

On their 1½-ton truck they use the Torbensen one-ton axle, capable of a 50 per cent. overload, with four-inch channel Carnegie steel frame, Phineas Jones wheels, Merrill springs and Kinsler-Bennett universal joint and propeller shaft. On their two to three-ton trucks they use the two-ton Torbensen axle, capable of a 50 per cent. overload, with five-inch channel Carnegie steel frame, and the same makes of other parts, except of heavier construction.





Top View, Dodge Tractor and Bishop-McCormick Trailer; at the Left, Ambulance on Extended Dodge Chassis; at Right, Dodge-Bishop-McCormick 1½-Ton Truck.

The standard wheelbase of their 1½-ton and three-ton trucks is 135 inches. This will accommodate a body with 9 to 10 feet of loading space back of the driver's seat. In cases where the purchaser desires more loading space they furnish a truck chassis with a wheelbase up to 160 inches. On this size chassis they use a split propeller shaft with self-centering bearing. The object of the split propeller shaft is to overcome any whip that would develop in an unusually long propeller shaft. On the tractors they use the same construction for the five-ton tractor that they use on the 1½-ton truck, except that the wheelbase is 110 inches, and the same construction for the five-ton tractor as the three-ton truck, with a 110-inch wheelbase. They also use the Martin rocking fifth wheel. The gear ratio on the 1½-ton truck and the three-ton tractor is eight to one and on the two to three-ton truck and the five-ton tractor the gear ratio is nine to one.

When a purchaser wishes to use his old horse drawn truck as a trailer they have found it necessary, in some cases, to lengthen the wheelbase of the tractor to give room for the extra wide body to clear the cab of the tractor when making a complete right angle turn, such as in the case where the trailer is backed up and the tractor is turned at right angle to the trailer, so as not to occupy too much of the street.

Their method of attaching the truck unit to the Dodge chassis is different from that used by the majority of the attachment companies. They have the truck frame made the same width as the Dodge frame and then spring the Dodge frame inside the frame of the truck attachment and hot rivet the frames together, thereby adding strength to the construction. Their truck and tractor attachments are made locally under their own supervision.

On their ambulance jobs they lengthen the Dodge standard commercial chassis to 138 inches and on the combination hearse and casket car the wheelbase is extended to 144 inches.

Commercial Car Sales 25 Per Cent. of Total Monthly Business.

When Bishop, McCormick & Bishop, Inc., started to develop their commercial car line, a number of people told them that it could not be done. However, a great majority of Dodge owners whose faith in the performance of the passenger car was sufficient to prove to them that it would make an efficient truck or tractor, encouraged them to proceed with the development of their commercial car line. The result of this development is that, even under the present adverse conditions they have not been able to complete enough jobs to meet the demand.

Their commercial car department is in charge of a mechanical engineer and a capable senior salesman. The engineer has charge of the construction of the trucks and the following up of special body work with the different body companies. He takes charge of the truck inspection service and directs the school for both the passenger car and truck operators, besides is at the service of any of the salesmen for consultation with prospective customers, advising them how to solve their trucking problems.

The volume of their commercial car business each month is approximately 25 per cent. of their total retail sales. Their associate dealers also attain excellent results in selling commercial cars.

42
41
14
13
12

Section of Commercial Car Department.

TEST TO PROVE THE THEORY OF GRAPHITE LUBRICATION.

The theory of all lubrication is to keep two moving surfaces apart. In theory this is correct, and also correct in practise with this one exception: Any oil or grease will stand weight or stress up to a certain limit, but if unusual weight or stress is placed upon the machine the oil or grease will squeeze out from between the surfaces and allow the metals to touch.

Metals are never smooth. Under a microscope the most highly polished piece of metal resembles a nutmeg grater. There are little pin points sticking up, pores in the metal, tool marks and other irregularities. When the oil or grease squeezes out these irregularities interlock. This is the cause of break off. This is termed "wear." friction. These little pin points also Tiny particles of metal get into the lubricant and returning through the bearing parts act as an abrasive.

The proper lubricating graphite entirely overcomes this. It first fills the pores of the metal, after which it places a veneer over the entire wearing surfaces. After the graphite veneer has been secured friction will have been reduced to the absolute minimum known to mechanics—not only this, but wear of metals will be prevented for the reason that contact now between graphite and graphite and not metal and metal. It is obvious that if metals do not rub together they cannot wear.

To demonstrate, take two small pieces of hard faced paper: Lay one upon the other and try to move the top piece over the bottom one, applying weight and force. It is friction that holds the two pieces of paper together. Now take some fine flake graphite and rub a little on each piece of paper, place the graphited surfaces together and do the same as before. You now find that the papers move readily one upon the other. To show this further, take one piece of paper on the corner of which is no graphite and rub upon the other graphited piece, rubbing for quite a time and in all directions, so as to work the graphite thoroughly into the paper. Now look at the paper and you will observe that the graphite has filled in the pores of the paper, after which it has placed a veneer over the entire surface. Rub your thumb over the graphited part and you will find that it does not rub off. Lay the two pieces of paper together and rub as before, placing weight upon it, and you find that the more weight applied, in other words, the more work flake graphite is given to do, the easier it moves, and unlike oil or grease, does not and cannot be squeezed out from the point of contact. In fact, it gathers at the point of contact until it has filled up the pores and irregularities in the paper.

This test illustrates the truth that irrespective of weight a film of graphite cannot be squeezed out. In fact the more weight applied the firmer it is embedded in the metal and the smoother the surface becomes.

Absorption of the Chevrolet by GMC

Consummation of Deal Is Expected in Near Future. Basis of Exchange of Shares as at First Announced.

"Market action of the shares of the General Motors and Chevrolet companies indicates that the plan for the absorption of the latter by the former is about to be consummated," says the Wall Street Journal. "During the last few days General Motors common has declined close to 20 points and in the same period Chevrolet has advanced about three points.

"There is nothing at this time to indicate any change from the earlier announcement as to the basis of exchange of shares. If the General Motors stock in the treasury of Chevrolet is to be distributed pro rata to the holder of the $64,109,800 Chevrolet stock it will be on the basis of 1 1/7 shares of General Motors for one share of Chevrolet. In other words, Chevrolet shares should sell at 1 1/7 the price of General Motors. This means that a price of 140 for General Motors would work out on a basis of 160 for Chevrolet.

"The short interest in General Motors during its many troubles of recent months has insisted that the large increase in the floating supply of General Motors common made necessary in the conversion of Chevrolet into an operating unit of General Motors, instead of a position as a distinct corporation, will tend to depress the General Motors shares marketwise. The stock was sold from 115 up on this theory. But it must be remembered that the large holders of Chevrolet represent interests distinctly friendly to the General Motors management. Control of Chevrolet rests with W. C. Durant and his friends.

"As far as the actual issued capitalization of General Motors is concerned, this will be considerably less after the financial plans are completed than the present combined capitalizations of General Motors and Chevrolet. The capitalization of General Motors now is as follows:

	Authorized	Outstanding
Common	$82,600,000	$76,873,300
Preferred	20,000,000	19,666,800

"Of the $76,873,300 of General Motors outstanding Chevrolet owns $45,000,000 par value. The financial plans call for the absorption of the net tangible assets of Chevrolet by General Motors, with the exception of the $45,000,000 par value of General Motors held in its treasury, for a consideration consisting of $28,268,400 General Motors common stock. The capital issues committee on Saturday approved the issue of this additional $28,268,400 of stock. Adding this to the $45,000,000 of General Motors stock already in the treasury of Chevrolet will give a total of $73,268,400.

"Assuming that the distribution of this General Motors stock to Chevrolet stockholders is on the 1 1/7 basis, the outstanding capitalization of General Motors will be made up of $105,141,700 common and $19,676,800 preferred, a total of $124,818,500. On the other hand the aggregate capitalization of General Motors and Chevrolet now outstanding totals $160,659,900, which means a reduced capitalization of $35,842,400 for the single concern."

NEARLY 40,000 AUTOMOBILES REGISTERED IN MAINE.

The automobile registration figures for the State of Maine recently announced show that up to Aug. 4 the sum of $538,874.50 was received in fees as against $445,268.75 for the corresponding period last year, an increase of $93,605.75.

The registrations and licenses to Aug. 4 as compared with last year are as follows:

	1917	1918
Registrations	33,540	38,103
Licenses	42,981	50,584
Trucks	3,000	3,856
Motorcycles	1,340	1,336
Dealers	403	414
Motorcycle dealers......	24	19

MASSACHUSETTS REGISTRATIONS SHOW PHENOMENAL INCREASE.

The registration of automobiles in the State of Massachusetts up to the first of the present month exceeded the total of the year 1917. Figures covering the registration up to August 1 show a total of 176,063 cars and trucks as compared with 174,274 for the entire 12 months of last year. As compared with the first seven months of last year the registrations to August 1 showed an increase of 23,593, or over 15 per cent.

Passenger cars registered up to August 1 of this year number 145,765, against 129,474 in the corresponding period a year ago, an increase of over 12½ per cent.

Up to August 1 of this year there had been registered 30,298 trucks and delivery cars. This is 7302 more than in the same seven months of 1917, an increase of more than 31 per cent. It is also 4209 more than were registered in the whole of 1917, when the total was 26,008.

Licenses have been issued this year to 163,336 persons authorizing them to drive motor vehicles in Massachusetts either as chauffeurs or private operators.

The figures for the period to August 1, 1917, and 1918, as compiled by E. J. O'Hara, chief of the automobile department of the highway commission, are as follows:

	1917	1918
Automobiles	*152,470	†176,063
Motorcycles	9,635	11,239
Manufacturers or dealers	2,311	2,446
Licenses (op. and chauffeur)	46,914	47,891
Operator and chauffeur renewals......	97,286	115,445
Examinations	10,724	11,298
Total receipts...	$1,729,930.31	$1,968,438.04

*Including 22,996 commercial vehicles.
†Including 30,298 commercial vehicles.

Activities of Prominent Men of the Industry

Resignations, Promotions and Other Changes in Personnel of Motor Vehicle Manufacturing and Merchandising Companies and Allied Businesses

IMPERIAL BRASS MFG.CO.
WELDING DEPT

New Welding Shop of Imperial Brass Manufacturing Co.

The Imperial Brass Manufacturing Co., Chicago, Ill., has just opened a new welding shop and are open for orders from manufacturers who have government contracts to make tanks, cans, containers, ovens, etc., which require the joining of metal to metal. This welding shop is one of the most thoroughly equipped in the country and maintains a staff of expert welders, who are in a position to help manufacturers to make prompt deliveries, keep up production and reduce manufacturing costs. The oxy-acetylene welding process, used in this shop, is far superior to riveting in making metal joints. Broken automobile parts and machinery of all kinds are also quickly repaired at the welding shop, which is perhaps the largest in the middle west. This department occupies a new building 50x150 feet, erected especially with a view to speeding up government contract work, and is ready to give exceptional service. Those interested in securing such service should write to Imperial Brass Manufacturing Co., 1200 W. Harrison street, Chicago.

The Ever-Wear Rubber Co. of Milwaukee, which was recently organized with a capital stock of $200,000, will manufacture a new inner tube. The inner tire is the pneumatic type and is protected by a cellular cushion hoop separating the tube from the casing. The officers of the company are: President, Andrew Steel; vice president, William A. Schacht.

The Gary Motor Truck Co., Gary, Ind., has increased its capital stock from $175,000 to $1,000,000. Additions will be built to the plant to increase production from the present rate of 500 a year to 1500 a year. The management has not been changed. The production has been increased several times.

The Bound Brook Oilless Bearing Co., Bound Brook, N. J., has insured all employees who have been in the service of the company for three months. They are insured for $500. The expense of the policies is paid by the company and the insurance plan applies to employees at the Bound Brook plant and the two factories at Lincoln, N. J.

The C. A. Dawton Co., De Pere, Wis., is completing work on a two-story addition, 40x120 feet. This addition will be used for the forge shop, pattern making department and machine shop. A new boiler room 36x40 feet is also being erected. They are manufacturers of gasoline engines.

The Hardman Tire and Rubber Corporation, Belleville, N. J., was reorganized in July and business will be continued under the name of the Hardman Rubber Corporation. An addition to the new plant will be erected. The present production is 125 tires a day. When the addition is completed the production will be increased to 450 tires.

The Paige-Detroit Motor Car Co., Detroit, Mich., has increased the prices of its cars which are as follows: Model 6-39 has been increased $120 and will sell at $1515; model Essex, 6-55, has increased $155 and will sell at $1985; Larchmont, 6-55, has increased $140 and will sell for $2090.

The Falls Motors Corporation, Sheboygan Falls, Wis., is erecting a machine shop addition. This will be a two-story building 60x125 feet and will be used for completion of government contracts for truck, airplane and tractor engines and parts.

The Highway Trailer Co., Edgerton, Wis., is erecting a new shop 50 by 250 feet. James W. Manhall is general manager. The company is working on government contracts for trailers for hauling airplanes, ordnance and quartermaster supplies.

The Twin Fire Spark Plug Co., Detroit, Mich., has moved to a larger factory at 720 Grand River avenue. The company has also enlarged the dealers organization considerably.

The Timken Roller Bearing Co., Canton, O., has increased its capital stock from $200,000 to $10,000,000.

The Western Reserve Rubber Co., Akron, O., has increased its capital stock from $10,000 to $50,000.

The Knight Tire and Rubber Co., Canton, O., has increased its output from 200 to 760 tires a day.

The John Obenberger Forge Co., Milwaukee, Wis., is erecting a forge shop addition for the manufacture of crankshaft, camshaft and similar forgings for the government. The present plant has undergone constant enlargement during the past nine months.

The Limousine Top Co., Kalamazoo, Mich., has secured a contract for the erection of a new building to its present plant. Work on the structure has already begun.

The C. R. Wilson Body Co., Detroit, Mich., is erecting a three-story addition to its factory at Clay avenue and Grand Trunk railroad.

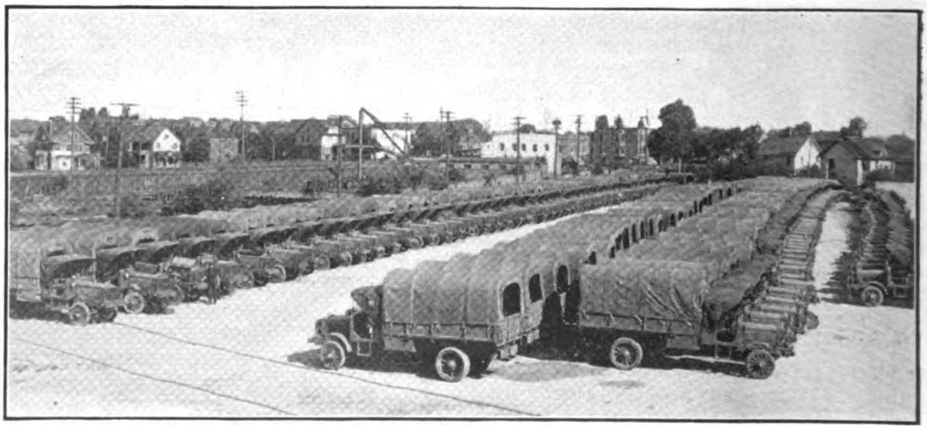
The Motors Metal Manufacturing Co., Detroit, Mich., in order to take care of a government order for metal parts to be used for ambulances, is erecting two large additions to its plant. One building is 60 by 200 feet and the other is 50 by 60 feet.

The Clark Equipment Co., Buchanan, Mich., has given an auditorium for its employees which may be used for athletics, theatricals and motion picture exhibitions. It has a seating capacity for 625 persons and contains a complete stage with lighting and scenery.

The Michigan Steel Castings Co., Detroit, Mich., is erecting an addition to its plant, which will add 53,700 square feet. Additional men will be employed. The building will be used for molding, core making and the engineering department. This building will be completed in the fall.

The Chevrolet Motor Co., Flint, Mich., has advanced the price on its models and are as follows: The Baby Grand model, $100, from $995 to $1095, and model 490, $50, from $685 to $735.

The Allen-Bradley Co., Milwaukee, Wis., is doubling the size of its plant by the erection of a three-story addition.



Army Trucks Built at the Plant of the Selden Motor Vehicle Co., Rochester, N. Y.

MATHEY BROS. EXCLUSIVE SOLID TIRE DEALERS IN NEW ENGLAND.

The business of Mathey Bros., 76 Cummington street, Boston, is unique in that it is the only one in the New England states confined exclusively to shoes for power trucks, and that it specializes service not obtainable elsewhere. The company consists of F. A. and Edward Mathey, both of whom for more than 15 years have dealt in tires, being associated with some of the leading manufacturers of the country, such as the Firestone, Kelly-Springfield and Gibney companies. For more than five years F. A. Mathey was the largest tire dealer in New Hampshire. The brothers sold tires when they were used exclusively for horse vehicles, and they have kept pace with the industry in its development.

The concern engaged in business less than a year ago in a small store in Sudbury street, Boston. The policy was to deal only in solid truck tires, to sell tires of all makes and types (standard shoes only) of highest quality, at extremely advantageous prices, and besides handling pressed-on, demountable, side flange, cushion, block or smooth treads, to specialize odd sizes and types that would be difficult to obtain through regular channels. The increase of the business was rapid and a store in Portland street was added. From less than 100 tires the stock increased to more than 3000 tires. This impelled leasing a new building erected at 76 Cummington street, which is now being equipped as a sales room, stock room, shipping room and service station. The purpose is to give a tire service day or night. In the service department is to be a 400-ton tire press, with which the largest tires made can be removed from and installed on wheels, and tires will be applied for any customer, no matter from whom purchased.

The machine equipment will be unusually complete and when operating the service department will make a specialty of changing truck tires from solid to pneumatic and will stock tires especially designed for changing truck equipment from pneumatic to solid tires. The work will be with a guarantee of satisfaction. The members of the concern will personally confer with truck owners or dealers with reference to the details of the sales proposition, which is new and decidedly attractive.

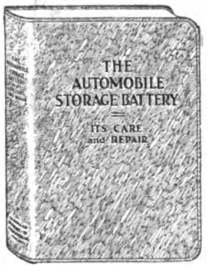
Its plant, located on Conant avenue, on the Michigan Central inner belt line, is one of the largest type of fireproof, daylight construction, having the unique feature of glass inserts in the concrete roof, as well as glass sides. Its employees work under ideal conditions. In fact a large part of its success has been due to the loyalty of its employees, which has been gained by giving them clean, healthy surroundings. In fact working conditions of the very best kind.

"THE AUTOMOBILE STORAGE BATTERY."

"The Automobile Storage Battery" is the title of a very comprehensive and authentic treatise on lead-acid electric secondary batteries, published by the American Bureau of Engineering, Chicago, which is in two sections, the first devoted to theory and practise and the second to repair and maintenance. The work is so written and illustrated that it will be a very great assistance to any one who has to do with electric batteries, whether an owner who desires to obtain the largest measure of battery efficiency at the least expense, the battery man who must repair and restore cells, or the owner of a station or garage who desires to afford satisfying service.

No work of this character can give a man mechanical knowledge or experience, but practically any owner or mechanic can, by following the suggestions in the book, determine any condition that might obtain in normal use, and by reasonable care maintain batteries so that a much larger ratio of service, efficiency and life can be obtained. For those who are experienced with batteries, either use or maintenance, the book contains much information that will serve a distincty useful purpose.

The book is systematically arranged and it is illustrated with many half tone cuts from exclusive photos, made by a battery man of unusually wide experience. These present conditions clearly that might not always be understood from description alone. There are complete instructions relative to charging, and the trouble chart is developed with reference to determining practically any cause for reduction of capacity or failure.



"The Automobile Storage Battery" Handbook.

The book is admirably made up and printed on heavy paper, with tabulation of contents and index of subjects, and is bound with a flexible leather cover. It is obtainable from the American Bureau of Engineering, 1018-24 South Wabash avenue, Chicago, and the price is $5.

BOOK ON THE CHAIN DRIVE.

A book of interest to every tractor manufacturer, dealer, designer, owner or salesman has recently been published by the Diamond Chain and Manufacturing Co., Indianapolis, Ind.

"The Final Drive for Tractors," as the book is entitled, discusses fairly and impartially this important mechanism of the tractor. Illustrations of a few of the many tractors on which chain is used as the final drive are shown in the book. Chain drive tractor dealers are using this book as a part of their regular sales literature, and in this connection "The Final Drive for Tractors" is helping to promote tractor sales for chain drive dealers and manufacturers.

A post card request to the Diamond Chain and Manufacturing Co., Indianapolis, Ind., will bring to any reader a copy of the book.

YMCA Appeals for Drivers and Mechanics

Overseas Motor Department Makes Appeal for Volunteers to Aid in War Work.

The National War Work Council of the Young Men's Christian Association is making an appeal for expert power vehicle drivers and mechanics to volunteer for service in war work in France. The need was never so urgent. The work of the association has increased greatly with the mobilization of American armies in France and Italy. There is every reason to believe that the demands will greatly exceed those that are now being met with much difficulty, and unless the association can continue its activities to the fullest extent the American forces will not have the support that is given them physically, morally and spiritually by the Y. M. C. A.

The workers of the Red Triangle serve for the common good of mankind, for the association does not recognize race, nationality or creed. The success of its activities depend very largely upon its power vehicles being maintained operative. The Overseas Motor Department, which maintains the machines, has made appeal for volunteers. It cannot augment its forces save by men volunteering their service.

There never was a time in the history of this country when the opportunity for volunteer service was so great for men over military age who can engage in Y. M. C. A. service.

America has more than met every call that has been made upon her as a nation, and patriots whose ages deny them the privilege of joining the colors, who are qualified by driving or mechanical experience, can serve the cause just as effectually by doing Red Triangle war work behind the battle lines. Any Y. M. C. A. secretary will give full particulars at request.

SAN FRANCISCO DEALERS ELECT.

Chester N. Weaver, one of the best known automobile men on the Pacific coast and head of the Chester N. Weaver Co., was elected president of the Automobile Dealers' Association of San Francisco at the annual meeting of the organization, which was held early this month.

FORD RUMORS UNFOUNDED.

Rumors that the Ford Motor Car Co. would stop making automobiles and manufacture munitions exclusively, has been denied by officials of the company.

"Our output of cars is limited because of the steel shortage," said an official, "but we are turning out 700 cars daily."

Activities of Prominent Men of the Industry

C. W. Nash Will Assist in Aircraft Production.

C. W. Nash, president of the Nash Motors company of Kenosha, Wis., has been appointed assistant to John D. Ryan, director of aircraft production, and will have charge of engineering and production. He is well known throughout the automobile industry and was formerly president of the General Motors Co.

Harry A. Conlon, for about a year connected with the Acason Motor Truck Co., Detroit, as sales manager and assistant to Vice President J. F. Bowman, has succeeded to the position of vice president and director of sales of the company which Mr. Bowman has just resigned.

Fred C. Sinley, District Sales Manager, Sanford Motor Truck Co.

James K. Beach is now associated with the Ajax Rubber Co. as district sales manager, with headquarters in Dallas. He succeeds H. C. Burnett, who enlisted in the army. Mr. Beach was formerly supervisor for the Ajax Co. in California, with headquarters at San Francisco.

J. E. Eldridge has enlisted in the radio service and is located at Camp Little Silver, N. J. He is president of the Eldridge Battery Co., operating stations at Washington, Clinton, Fairfield, Ottumwa and Muscatine.

Fred C. Meinhardt is now with the Milwaukee Auto Engine and Supply Co. as business manager. He was for 20 years auditor of the United States engineer's office at Milwaukee.

D. Kiefer has resigned as engineer in charge of the ordnance division at the Harroun Motors Corporation, Wayne, Mich., to join the navy.

Harry A. Conlon, Vice President and Director of Sales, Acason Motor Truck Co.

E. B. Moon has been appointed sales manager and advertising manager for the Columbus Tractor Co., Columbus, O. He was formerly director of sales of a large wholesale house.

W. I. Brown has become eastern district sales manager for the Cleveland offices of the Cleveland Tractor Co. Mr. Brown has long been well known among automobile men and gained a wide acquaintance among dealers while assisting A. I. Philip in the sales work of Dodge Brothers and later as sales manager of the Scripps-Booth Corporation.

J. Henry Smith, sales manager of the motor parts department of the Rich Tool Co., Detroit, will move his headquarters to the company's main office at Chicago. Horace S. Johnson will take charge of the Detroit office.

F. Ed. Spooner has resigned as chairman of the truck committee of the Automotive and Accessories Exposition, Inc., which is to hold a show on Chicago's Municipal Pier, Sept. 14-21. His resignation was due to pressure of other business.

R. H. Spear, President of the All-American Truck Co.

W. Earl Clayton has been appointed general manager of the Derf Manufacturing Co., New York City. He has been connected with the company since the first of the year and since that time has increased its sales over 1000 per cent. The output of the company has reached a production of a thousand Derf spark plugs a day and plans are being made for greatly increasing the output during the next few months. The company has been reorganized and Fred Gerken continues as president.

W. Earl Clayton, General Manager Derf Manufacturing Co., New York City.

C. M. White, Sales Manager Firestone Steel Products Co.

George H. Bishop, who was for 16 years connected with the Eclipse Works of Fairbanks, Morse & Co., Beloit, Wis., resigned to accept the position of charge of the general organization and system works of the Wright-Martin Aircraft Corporation, with works at New Brunswick, N. J.; Long Island City, N. Y., and other eastern cities.

R. L. Leigh is now general sales manager and a director of the Hackett Motor Car Co., Grand Rapids, Mich. He was formerly supervisor of eastern sales of the Reo Motor Car Co., Lansing, Mich., and later acted as division sales manager for the Olds Motor Works.

Charles S. Shuman has joined the Vacuum Muffler Corporation, New York, as sales manager. For many years he was with the Klaxon horn organization and recently manager of the motor car department of the Standard Metal Manufacturing Co., Newark, N. J.

A. A. Gloetzner, Sales Manager of Covert Gear Co., on Overseas Service.

Fred J. Miner has been appointed to territory in the southeastern states for Duplex Truck Co. as district representative. In the early developments of the Duplex Mr. Miner assisted the company.

Robert M. Gregory has been placed at the head of the purchasing department of the Lane Motor Truck Co. of Kalamazoo, Mich. He has been connected with the automobile industry in the manufacturing end for 12 years. The Maxwell Briscoe Co. first claimed him and he has held responsible positions with the Chalmers Motor Car Co., General Motors Co., Hupp Motor Car Corporation and the Packard Co.

W. Irving Fickling, president of the Fickling Enameling Co. of Long Island City, reorganized the company after he entered business with Carl H. Page, as the New York-Fulton Truck Co., 1800 Broadway, New York, to distribute Fulton trucks in eastern New York state and on Long Island. The Enameling and Stamping Corporation succeeds the Fickling Enameling Co., with a capital of $200,000. Mr. Fickling remains president and H. F. Holbrook becomes secretary and treasurer. He was formerly of the well known body building concern, the Holbrook Co.

Harry B. Warner, Vice President and Production Manager, Federal Motor Truck Co.

Herb Wilson has become associated with the George W. Franklin Co., distributor of Dort passenger cars in Detroit. He is to handle the wholesale business for the company. He was late district sales manager for the King Motor Car Co. in the southeast.

H. M. Prewett is now district manager of the Willard Storage Battery Co., with headquarters at Detroit. He succeeds S. S. Jenkins, who has been made district manager of manufacturers' sales.

A. A. Gloetzner, sales manager of the Covert Gear Co., has received a commission and is on overseas work for the government. His picture appeared in the June issue of the Automobile Journal as "C. T. Chenevert," which error was due to a mistake in identifying his portrait.

Eddie Rickenbacher, Famous Racing Pilot, Is an American Ace.

Hi Sibley has joined the advertising staff of the Packard Motor Car Co., Detroit. He was former advertising manager of the Republic Motor Truck Co., Inc., Alma, Mich.

J. F. Richman is now associated with the Allen Motor Co., Fostoria, O., as factory manager. He was formerly factory manager of the Cole Motor Car Co., Indianapolis, Ind.

Chester I. Campbell, the well known director of the automobile shows at Boston, has been placed in charge of the exhibition that is to be held in Chicago this fall under the auspices of the National Association of Automobile Accessory Jobbers. Decorations for the show will be furnished by the Atlantic Decorating Co. of Boston, of which Mr. Campbell's brother, E. W. Campbell, is manager.

Chester I. Campbell Will Manage N. A. A. A. J. Show in Chicago.

The Combination Lamp and Horn

Novel Signaling Device Taken Over by Wire Wheel Corporation of America.

Through the absorption of the basic patent rights to a combination lamp and horn, the Wire Wheel Corporation of America, the dominant company in the country in the wire wheel business, has departed from its standard line of production.

The combination lamp and horn is very ingenious and its salient features stamp it as being a radical refinement over present day practise in signaling. It is the joint invention of George Stowe and George E. Molyneux.

The combination of the lamp and horn brings about a great saving of parts and material. The horn casing, bracket, trumpet and screws and clamps innumerable, become unnecessary and the combination of lamp and horn with its fewer parts, far from detracting from the efficiency of either, accentuates the horn, and locates it in the position where it logically belongs—right in front of the car.

The inventors, in their patent application claimed "to provide a compact structure by which an electric horn and electric light may be intimately associated, and the one disguised by the other without destroying the utility and operation of either device," and this they have effectually accomplished. This applies to both vibratory and rotary horns, but while the former is simply applied to practically standard makes of lamps, the rotary or motor driven horn is housed in a lamp especially designed and made for its proper application.

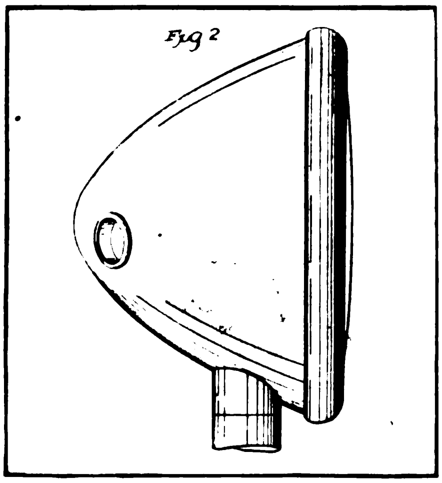
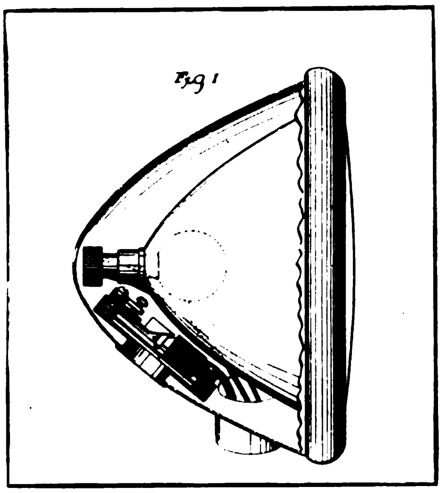


Figure 2 Shows the Only Change Necessary to Be Made in a Standard Type of Lamp for the Installation of a Vibratory Type of Horn. The Ferruled Hole, Towards the Back of the Lamp, Becomes at Once the Supporting Member of the Signaling Device and the Mouth of the Horn.

This application and, in fact, the whole device for bringing the combination into being is simplicity itself. Near the rear of a standard lamp of the familiar bullet type and below the horizontal diameter of the lamp, a hole is made and the metal edges turned up and ferruled. This aperture is preferably slanted both downwardly and rearwardly, to prevent rain beating in, or the careless flooding of the lamp by the car washer. This ferrule becomes the supporting member of the signaling device, as well as the trumpet or mouth of the horn, as this is the aperture through which the signaling sound is emitted.



Combination Lamp and Horn, Showing Special Lamp Body and Location of Rotary or Engine Driven Type of Horn Back of the Reflector. Compactness Is Apparent with All Wire Leads Threaded Through the Tubular Member of the Lamp and Its Regular Supporting Post.

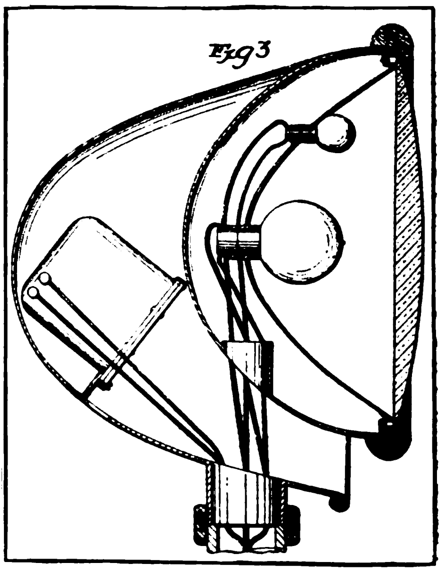
The combination horns and lamps are operated in the conventional push button method, and the disposition of the horn to the front of the car is the important departure from the side of the car, and the more general location under the hood.

One interesting feature about the new device is the possibility of intensifying the volume of sound for signaling purposes. The "toot" of the small horns becomes a deep and commanding "boom" with the slight adjustment of the vibrator and the inventors explain this by the peculiar acoustic properties in the back of the bullet shaped lamp—the concentration of sound and its omission under impulse from the mouth located directly at the front of the car, where it can be heard with proper intent.

What the activities of the Wire Wheel Corporation of America in its departure from standard line of production may portend for the future is not definitely known. A large modern plant located at Springfield, Mass., and taken out of wire wheel production at the opening of war activities, and now devoted to government work, would be available to the corporation should it decide to go into manufacture of the combination horn and lighting device. In that case wire wheel production might be confined to greatly enlarged quarters at the home plant at Buffalo, N. Y.

INDIANAPOLIS AUTOMOBILE TRADE ASSN. HEADQUARTERS.

Following in the footsteps of many other trade organizations, the Indianapolis Automobile Trade Association has opened up a suite of offices at 338 North Delaware street. The association has a membership of 90 and is one of the live wire organizations of the trade. As a body they have taken a lively interest in helping the government, as well as any local movement that pertains in any manner whatsoever to winning the war, or in helping the men over there. Cars for the transportation of every Liberty Bond speaker, trucks for the hauling of pianos, musicians and chairs for hundreds of factory meetings were furnished to the Liberty Bond committee by the Indianapolis dealers. Two hundred and fifty-six cars were furnished during the one week of the "War Chest" drive. In addition the association members subscribed for over $150,000 worth of bonds; the organization bought $5000 worth and contributed three full pages in the local papers to push the sale of the bonds; all the members went 100 per cent. in the "War Chest" subscription and about 40 per cent. are now over the top in Thrift Stamp sales.



The Illustration Shows the Vibratory Type of Horn Set in Back of the Reflector of the Standard Type of Lamp and Wires Leading Into Regular Supporting Post.

The association puts on two big automobile shows each year, a fall show and a spring show. This season the fall show will be given in conjunction with the Indiana State Fair, Sept. 2 to 7 inclusive. Instead of using one big tent 150 feet by 300 feet as formerly, they have contracted for three "big tops," it being the hope of John Orman, under whose management all Indianapolis auto shows have been given, that for once they can accommodate all comers with space. The officers of the Indianapolis Automobile Trade Association are: President, E. W. Steinhart; vice president, R. V. Law; treasurer, A. H. Smith; secretary, A. W. Hutchison; business manager, John Orman.

REAR SIGNALING DEVICE ESSENTIAL ON ENCLOSED BODIES.

Arm signaling in the present age is comparable to the signal fires in use by the Indians of old as compared to the telegraph of today, according to K. G. Barkoot, distributor of the Roedding signal tail light, who has taken issue with John N. Willys, an advocate of the old fashioned method of signaling. It is the contention of Mr. Barkoot that closed cars are coming more and more into favor and that in the closed cars arm signaling is impracticable and dangerous in the extreme. This is especially the case in winter weather according to the Detroiter, who also points to the fact that 90 per cent. of the cars seen on the streets even in summer are either of the permanent roof top variety or have their tops up. Mr. Barkoot says that people have come to the opinion that there is about as much sense in chasing through the country in an automobile with the top down as there would be in traveling on an electric car without a top or a Pullman car or railroad coach with no top. This condition has brought into the limelight the necessity of a signaling device operated from the steering wheel and plainly seen by the driver behind both during the day and night.

Mr. Barkoot has written to Mr. Willys stating facts regarding signal lights and comparing the proposed hand signaling with an automatic signal. He told the great Toledo manufacturer that there was a strong possibility of misinterpretation of the intention of the driver behind in reading the signals and a chance of the signaler giving the wrong sign. The fact that St. Louis has passed an ordinance requiring a mechanical signal device on moving vehicles was also called to the attention of Mr. Willys. In the opinion of Mr. Barkoot it is only a question of time until motor car manufacturers will be compelled by public opinion to include as standard equipment some mechanical device for the prevention of accidents and to increase the safety of traffic. Flint, Mich., indorsed the Roedding signal tail light, which is a small cylinder enclosing a revolving drum on which there are large enough letters to be seen, the control being on the steering wheel. The one button blows the horn and signals also through the revolving cylinder the driver's attention. The device is operated electrically.

CASSIDY CO. BECOMES SALES DEPARTMENT FOR ECCOLENE.

The Eccolene Co. of Detroit announces that arrangements have been concluded whereby the Edward A. Cassidy Co., New York City, will act as their sales department hereafter, having entire charge of the selling and advertising of Eccolene throughout the world.

Eccolene is the product which has startled some of our most prominent automobile engineers by the marvelous results it has given under every test it has been put to when used in treating present day gasoline. It has proven conclusively to practically eliminate carbon deposit entirely, a better performing motor and a decided increase in mileage per gallon of gas, and it unquestionably is one of the greatest discoveries given by science to the automobile up to the present time.

Eccolene is a product compounded from seven oils and when added to gasoline in a proportion of one to two ounces to five gallons of gasoline, according to the size of the motor, by chemical action it breaks up the gasoline coming through the carburetor and so transforms it that almost every atom will be burned. The result is practically perfect combustion, there is no waste or residue. Maximum efficiency is obtained from every ounce of gasoline used and the motor performance shows almost immediate improvement.

Eccolene is positively non-volatile; it is in itself non-explosive and in no way compares to ether or picric acid. Eccolene simply acts as a vitalizer in the gasoline by making it completely combustible, and it is absolutely non-injurious to any motor.

The Cassidy company has put Eccolene to exhaustive tests before entering into their present arrangements with the manufacturers. It is stated that Ralph De Palma, the speed king, used Eccolene treated gasoline in the Memorial Day race, which he won at Sheepshead Bay, New York, as well as at the recent Cincinnati race, which he won.

The Cassidy company now acts as the sales department for some of the largest manufacturers of equipment, which include the Corning Glass Works, Rajah Spark Plug Co., the G. Piel Co., West Side Foundry Co. and F. W. Mann Co.

Eccolene will be marketed under the standard sales policy of the Cassidy company, which means that it will be sold exclusively through the jobbing trade to the dealer and dealer to consumer.

There is now in preparation an extensive advertising campaign, national in scope, which combined with the progressive sales methods of the Cassidy company will make Eccolene a standard product known and used throughout the United States.

NELSON MFG. CO. MOVES INTO NEW AND MODERN PLANT.

The A. Nelson Manufacturing Co., Chicago, makers of automobile parts and accessories, repair parts and specialties for Ford cars, brushes for starters and generators, ignition specialties, plain and castellated nuts, special screw machine products and sheet metal stampings, have moved into a new and modern plant at 2662-2722 Southport avenue.

With the additional manufacturing facilities now available the company will be in a position to meet the present dedemand promptly.

No Limitation On Sale of Gasoline

Fuel Administration and War Industries Board Deny That Any Restrictions Have Been Approved.

The quite general adoption of the plan recommended by the National Automobile Dealers' Association for the closing of service stations and gasoline distributing stations on Sundays and after 6 o'clock at night, which plan was approved by the conservation committee of the War Industries Board, has invoked a statement from the Fuel Administration and War Industries Board, which was issued to dispel the belief that any such campaign had been authorized from government sources.

This statement, which appeared under date of Aug. 2 in the government publication, the "Official Bulletin," is as follows:

"The attention of the War Industries Board of the United States Administration has been called to the wide prevalence throughout the United States of a mistaken impression that some order or recommendation has been issued from Washington with respect to the sale of oil and gasoline. In some places local automobile dealers' associations have even issued circulars laying down the rule that dealers in oil and gasoline must make no sale of these products on Sundays and holidays or after 6 p. m. on other days, and stating it is an order from Washington.

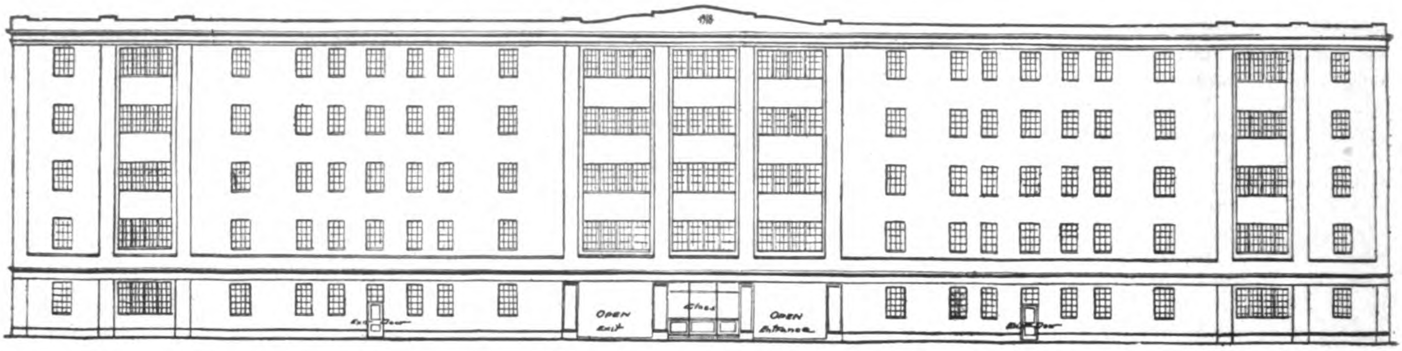
"No such order or recommendation has been issued by any governmental authority or with any governmental approval. The fuel administration has urged that wasteful practises in the use of oil and gasoline be stopped and that all reasonable and proper measures of conservation be observed. No limitations, however, have been placed upon the sale of these products.

"It is not intended to interfere in any way with the activities of automobile dealers' associations or others who, after consideration of the local conditions, may seek to bring about some limitation upon the hours during which oil and gasoline shall be sold to the public; but it is desired that it be clearly understood that no orders or recommendations have been issued by any government authority upon the subject."

NO INTERFERENCE WITH GOVERNMENT AUTOMOBILES.

Commissioner of Motor Vehicles Robbins B. Stoeckel of Connecticut has made a ruling touching on the relations between automobiles owned and operated by the United States government and the motor vehicles commission. Commissioner Stoeckel makes it plain that no state inspector has any right to interfere with any car bearing government designation, although such cars violating the law may be held up for the purpose of securing information as to their status.

Largest Garage in the World in New York



Front Elevation of Interstate Garage, Which Will Have Testing Track on Roof.

THE largest, most complete and finest garage in the world is being undertaken by the principal hotel men of New York City for the benefit and protection of their patrons and guests, and it is now under construction. It will be opened for the reception of 500 cars by Sept. 15 to 20, and it will be entirely completed by Nov. 20. Over half of the accommodations were engaged before work was started on the construction of the building. The project of this garage, for it is an interstate undertaking, has been in course of the perfection for nearly a year.

The garage is being erected on the block bounded by 47th and 48th streets and Second avenue, with a 200-foot frontage on Second avenue and extending 350 feet on the street sides, which embraces the old Claussen brewery property and the additional buildings they control. The Interstate Garages, Inc., was incorporated under the laws of the State of Delaware for the construction of garages throughout the various cities of the United States, and will combine every modern utility for the proper care and protection of cars and the elimination of inconveniences and bad features.

Each car will have a commodious steel cage, size 20 by 12, and even larger when required for larger cars. They will be thief proof and fireproof and equipped with every conceivable improvement, including owners' and chauffeurs' steel thief proof lockers, stand pipes for washing, facilities for polishing with said private cage, work bench, flushing devices, smothering devices for fire and telescopic doors to each cage.

There will be no elevators, except an emergency and passenger elevator, and there will be no delays in getting in and out as the cars will proceed by slightly inclined, wide runway double ramps for entrance and exit on their own power to their private garage. All progress of entrance and exit will be right hand rotary, thereby rendering collision or injury to cars impossible. Thirty-six cars can be served with gasoline and commodities simultaneously.

The aisles throughout the garage will be 20 feet wide, the runways or ramps the same width, with raised concrete dividers.

A concrete bumper and conformer will be installed in each garage so as to avoid the necessity of backing and filling in entering, as the concrete conformer automatically guides the car safely into its place in the centre and against the bumper which stops it.

The aisles and private garages will be amply lighted and every modern device against the possibility of fire will be established, including a fire smothering device and sprinkling system in each cage, interior and exterior, provided with automatic fire extinguishers and steam suppressors. As each car registers, either permanent or transient, it participates in a full value insurance against fire, thievery, collision and injury of any nature while in said Interstate garage. The entire building will be of reinforced concrete, double fireproofed.

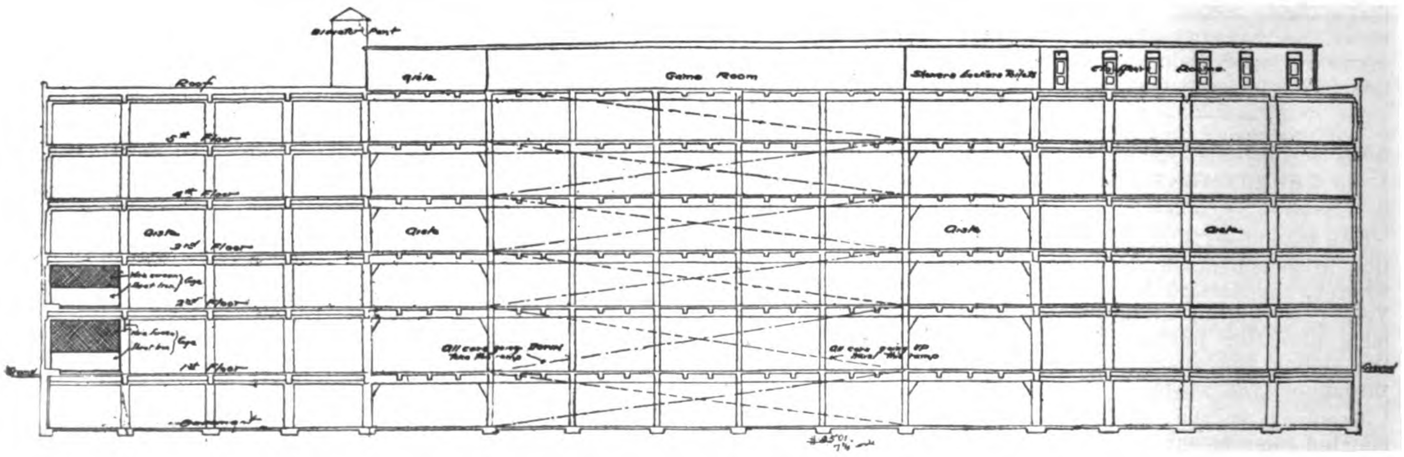
The garage will be five stories above the ground and two underneath. The garage will have a total accommodation in private cage garages for 863 cars. There will be 200 rooms for chauffeurs, with baths, showers and a commodious club room, also a club room for owners.

There will be reception rooms for ladies and gentlemen on the ground floor. Other features are: 100 kennels and runways for dogs; an owner's repair room 100 by 90 feet on the top floor; a general repair room also, 160 by 200 feet on the top floor.

There will be a testing course for cars on the roof to permit the owner or chauffeur to test his car after repairs and correct any defect.

Every precaution has been provided for against fire or combustion of any nature and all of the inflammable materials carried, including gas, oils, greases, etc., will be stored in the lower vault hewn out of solid rock.

Two hundred permanent memberships have been reserved for the permanent residents of the various hotels, club houses and apartment houses in the central zone, which said zone contains the largest number of registered passenger and commercial vehicles of any zone of like size in the United States.



Showing Construction of Interior of Building with Caging for Individual Garages, Ramps Leading from Roof to Ground Floor and Chauffeur's Quarters and Game Room.

CHAMPION SPARK PLUG SALESMEN HOLD MIDSUMMER CONVENTION.

The 60 members of the Champion Spark Plug Co.'s sales force who met in Toledo recently for their midsummer convention, put in a strenuous three days' session living up to the program mapped out for them.

R. A. Stranahan, president, and F. D. Stranahan, treasurer, acted as hosts to the visitors, while F. B. Caswell, sales manager, assumed the responsibility of planning the program and seeing it through.

He sounded the keynote of the meeting on opening day when he impressed upon the salesmen the fact that "business as usual" was a misnomer. He stated that while the sale of Champion Spark Plugs had shown a steady increase up to the present time, it would require intensive sales work on the part of the road men if this increase was to be maintained.

"It's no longer a question of every man doing his bit," he said, "but from now on every member of this organization must do his best. It's true there will be fewer passenger cars built this year, but of those built 60 per cent. will be factory equipped with Champions. The next six months will show me whether you fellows are real salesmen or merely order takers."

The first day of the convention was given over entirely to business discussions. From 9 o'clock in the morning until 6 at night the men listened to half hour talks by officials of the company and those members of the sales force whose long association with the company qualified them to speak authoritatively on spark plugs and how to sell them.

The noon luncheon was served in the dining room at the factory and at 6 o'clock sharp the visitors were hustled into waiting taxicabs and driven down town to the Y. M. C. A., where after a light "feed" they donned their gym suits and proceeded to prove their physical fitness, which is one of the things insisted upon by the company.

The day was brought to a close with a banquet at the Toledo club, during which each man was called upon to tell in a few words his most interesting experience while selling spark plugs. These litle business talks were interesting, as well as instructive, especially to the younger members of the sales force, who picked up many valuable pointers on what to do and what not to do when talking to a prospective customer.

The program for the second day included a trip through the plant in the morning followed by addresses from men prominent in advertising and sales circles.

A banquet at the Inverness Golf Club took place in the evening, after which a number of letters were read from members who have joined the colors. An engraved certificate bearing the name of each man on the company's honor roll and signed by both president and sales manager, was mailed to the 77 men now with the U. S. forces. These certificates bore the following message:

Champion Spark Plug Co., Toledo, O.,
U. S. A.
Hereby Certifies That
(John Smith)

has been granted leave of absence for such time as his services shall be needed by our government, in the Army or Navy, as he may elect, it being understood that a position awaits his return from the duty to which he was called and which we know he will fill with honor to himself and his country, and we extend our very best wishes for a safe return with the victorious forces when peace and freedom reign over the world.

CHAMPION SPARK PLUG CO.

The last day was spent in Detroit, the company chartering a special car for the trip. During the forenoon a tour of inspection was made of the company's porcelain factory, after which a luncheon was served at the Detroit Athletic Club. This wound up the convention.

Champion Spark Plug Salesmen and Their Wives at Midsummer Convention in Toledo.

NEW MANAGER FOR BEARINGS SERVICE IN NEW YORK.

Announcement of the promotion of Mr. B. H. Boensch to the managership of the New York branch of the Bearings Service Co. has been made by Mr. A. K. Hebner, general manager of the company.

Mr. Boensch for some time has been a special representative of the concern and has been engaged in appointing distributors. Through his intimate knowledge of the company's business he is well fitted for the duties which he has assumed. The New York branch is one of the most important of the chain of 22 operated by the Bearings Service Co. in its service function to the motorists on Hyatt, Timken and New Departure bearings.

REGAL COMPANY BOUGHT BY MAURICE ROTHSCHILD.

Maurice Rothschild is the sole owner of the Regal Motor Car Co. and of the Regal factory and ground. The factory comprises over 300,000 square feet of floor space on Piquette street, Detroit, and will likely be utilized for car building as of old—but not until after the war insofar as car building is concerned—it being the plans of Mr. Rothschild at present to inaugurate Regal service on a high grade for the owners of this car throughout America. Mr. Rothschild will make every endeavor in the intervening time between the present and the war's close to so reorganize the company's affairs that it will be possible to start manufacturing on a large scale at the war's close. That start would be made now, but the new owner of the Regal company will bow to the wishes of the government in the conservation of steel and will make no effort to start active manufacturing at present. With the time which he has before him the Chicago-Detroit capitalist believes that it will be possible to organize a working force which will be in a position to carry out all of the plans he has in mind. He is alone in the ownership of the valuable properties which, due to war conditions, he was able to secure for $500,000, although the appraised value of the property was $1,200,000. Mr. Rothschild was a bondholder, stockholder and creditor and objection was made to his offer, but Judge Arthur J. Tuttle of the Bankruptcy Court accepted the offer in view of the curtailment of the motor car industry by the government having substantially decreased the value of the holdings. The judge believed that the price offered by Mr. Rothschild was the best that could be obtained at this time and the real estate, factory, stock and all of the manufacturing assets of the company were turned over to him. The Regal company will be maintained as an active business concern. Mr. Rothschild said that his plans in general included the shaping of the manufacturing for the future a considerable job, as the output of the company after the war is likely to be on a much larger scale than ever before. The model J Regal, four-cylinder model, was one of the most popular of cars throughout the country and will be continued indefinitely. In the interval until the war's close the factory will be devoted to service and will be rearranged to give best results in this field.

Manufacturing Roller Transmission Chain.

The Front Exterior of the New Plant of the Diamond Chain and Manufacturing Co., Indianapolis, Ind., 480 Feet Long and 60 Feet Wide, of Brick, Steel and Concrete.

IT HAS been a long step from the advent of the bicycle to the tremendous success of the motor truck and tractor, but the Diamond Chain and Manufacturing Co. of Indianapolis, Ind., has also grown and developed with the industry.

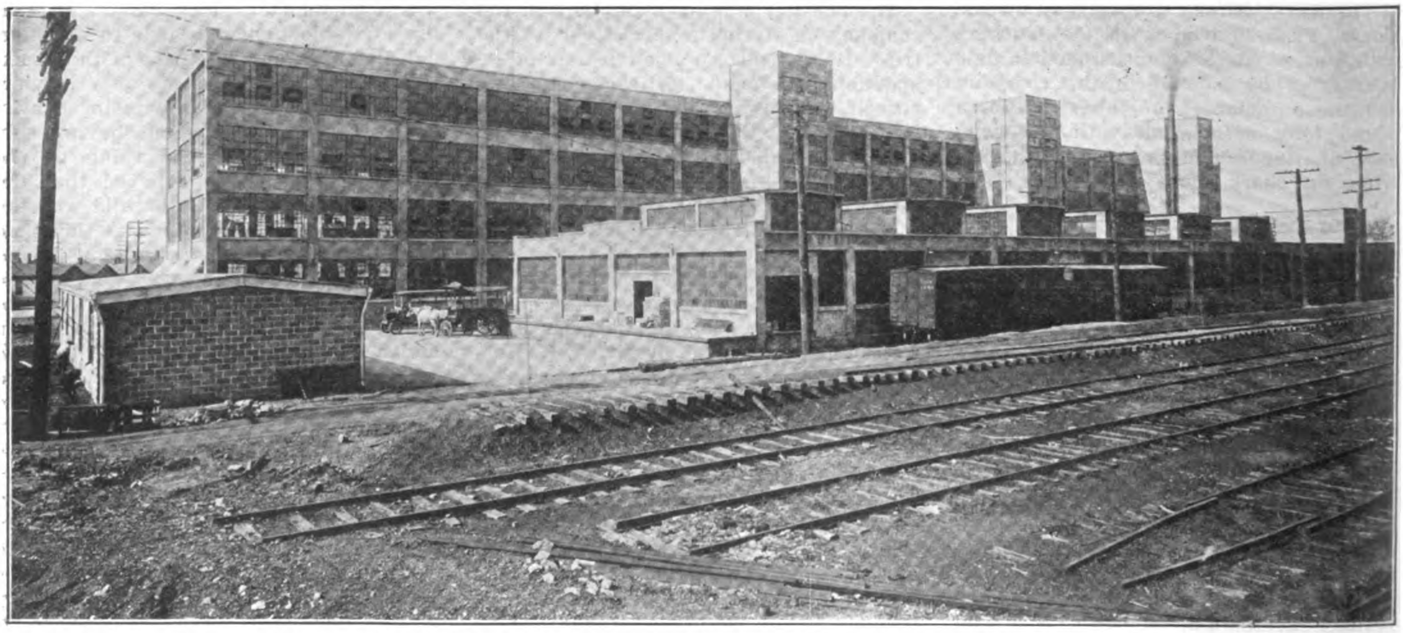
Back in 1890 this concern began the manufacture of roller chain for the transmission of power. Now its product is known in every village in the United States and in every foreign country. Like many other lasting successes the Diamond Chain and Manufacturing Co. has not had a mushroom growth. Its production has gradually grown, always just a step ahead, until it is now one of the real successes in the motor truck and tractor accessory business.

The Diamond Chain and Manufacturing Co. does not feel that it "has arrived"—there is always room to grow and to improve. That it has grasped these opportunities and that it has made the most of them by always keeping its product at the ultimate in perfection is a well known fact among the trade.

Care Given to Manufacture.

Few know about the out-of-the-ordinary care and attention given to the manufacture of Diamond truck and tractor chain and it is impossible to do justice in this small space to so interesting a subject. The photographs from which the accompanying illustrations are produced will give some idea of the proportions of the new factory into which the company has just moved.

Perhaps no product is manufactured under more ideal conditions. Certainly no higher manufacturing standard is in effect from the moment the raw steel is received until the finished chain has been given its final inspection. Every link, side bar, rivet and roller is minutely examined—then if up to the "Diamond" standard of quality it is passed. After this the links are assembled by special automatic machinery into chains of varying length. The finish chain is again carefully inspected—tested for



Rear of the Main Building of the Diamond Chain and Manufacturing Co., Showing the Railroad Siding Beside the Storehouse and Shipping Department.

View of the General Offices (In the Background) and the Order Department (In the Foreground).

strength. If the completed chain equals the strict requirements established it is then ready for service.

Plant on Six-Acre Site.

The location of the Diamond Chain and Manufacturing Co. is at the corner of Kentucky avenue and West street, standing on a site of six acres, five blocks from the center of the business district, commonly referred to as the shopping center.

Part of the Assembly Room, on the Fourth Floor, Where the Chain Is Finished.

Illustration No. 3 shows a view of the offices of the department heads of the company, the foreground being a view of the order department. Orders are promptly entered here and delivered to the shipping department. The stock room shown in illustration No. 5 is located in the one-story building adjoining the main plant. Parts, such as rivets, rollers, side bars, etc., are case hardened in the hardening division shown in illustration No. 6. Here is where the wear is built into the finished chain, enabling it to give the long life and greater service for which "Diamond" chain is noted.

The blank parts after leaving the hardening room are then sent to the various departments, where the side plates are punched, the parts assembled. Then the links are ready for assembly into the finished chain, the rivets being spun by automatic machinery.

Plant Employees Number 1000.

To produce the millions of feet of "Diamond" truck and tractor chain demanded each year by the trade, about 1000 people are employed. To properly house this vast number of employees under proper working conditions, to furnish them with a cooperative grocery store where they may purchase their provisions at cost, to provide the spacious lunch room and kitchen where hot meals are served each noon, to contain the welfare offices, with a hospital, library, rest room, etc., the mammoth factory shown in illustration Nos. 1 and 2 is needed. The main building is four stories high, 60 by 460 feet, and the one-story structure is 80 by 300 feet.

The building is supplied with many stairways, elevators, locker rooms, shower bath, etc.—every known convenience for the comfort and convenience of its army of faithful employees is provided by the company.

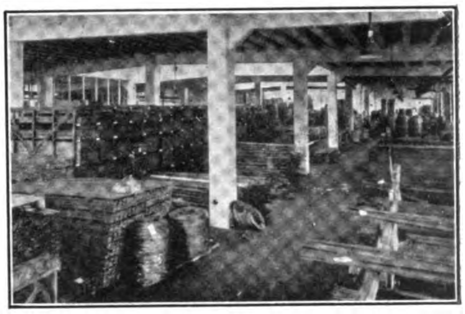
Aside from the pride in the product and the constant aim to keep it at the ultimate in perfection, the Diamond Chain and Manufacturing Co. is rightly proud of the splendid showing it has made in the Liberty Loan, Red Cross, Y. M. C. A. and other war fund campaigns.

This story will better acquaint you with the product and policies of the Diamond Chain and Manufacturing Co.—will show you the methods which have enabled it, through conscientious devotion to a single product, a single policy and a single high quality to spring as from the little acorn to the mighty oak. It is their ambition that by means of the quality of their product and service they will continue to deserve their place in the sun—fit to participate in the enormous growth of the truck and tractor industry.

KEEPING THE CAR REPAIRED.

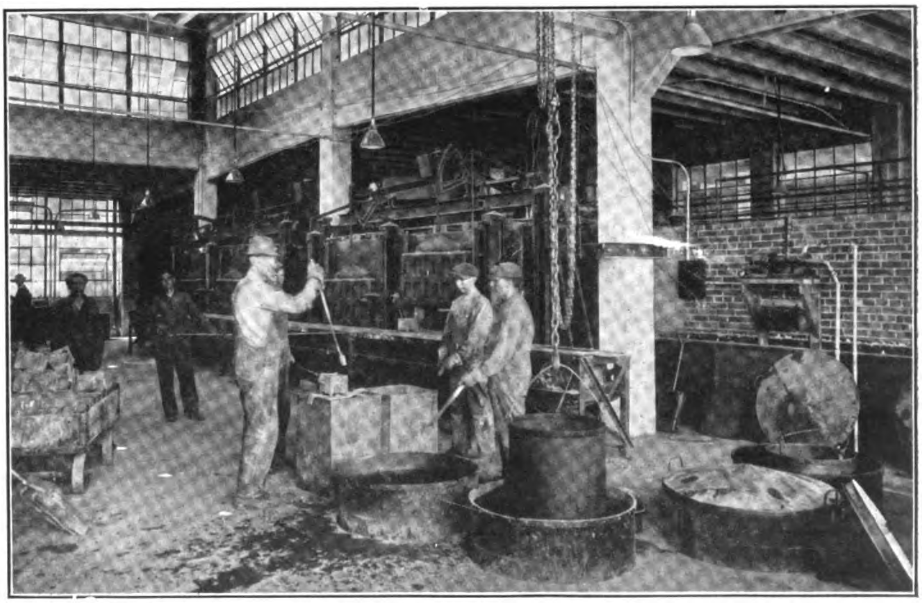
One of the best rules for keeping a car out of the repair shop is the proper use of lubricants. The most sensitive parts of the car are the bearings and unless they are given scrupulous care they are the first to break down.

This bit of advice is given by a repair man who has seen hundreds of cars come and go at the repair shop. "Next to proper adjustment," he says, "a good lubricating system and the right kind of lubricating grease for each bearing are necessary to keep a car in good running order.

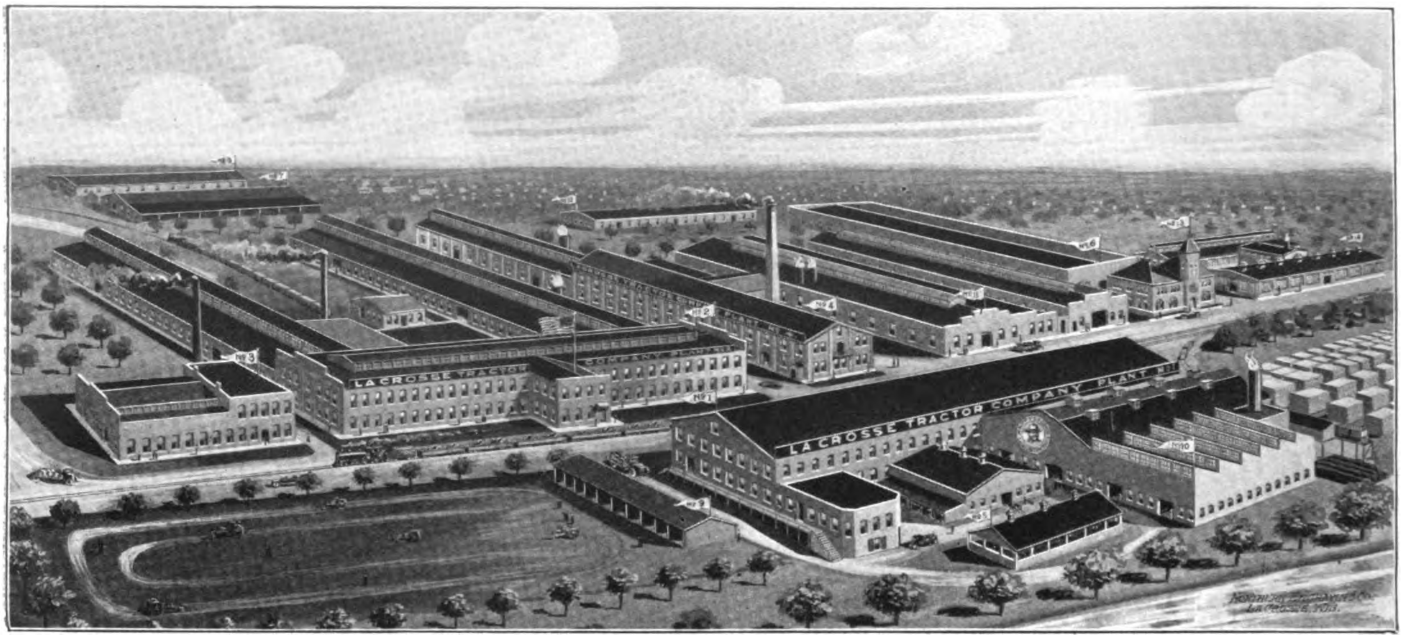


The Raw Stock Room, from Which All Material Is Requisitioned.

"A good grease, mixed in the right proportion with selected flake graphite, forms the best lubricant for bearings. The Joseph Dixon Co. puts it up already mixed, a different grade for each purpose.



Section of the Hardening Department, Where the Rivets, Rollers and Side Bars of Chain Are Heat Treated.


LA CROSSE TRACTOR
LA CROSSE TRACTOR COMPANY PLANT

The Plant of the La Crosse Tractor Co., La Crosse, Wis.: 1, Machine Shop; 2, Tractor Assembly and Paint Shops; 3, Pattern Shop; 4, Machine Shop and Iron Foundry; 5, Engine Testing Shop; 6, Sheet Metal Shop; 7, Storage; 8, Storage; 9, Final Testing Shed; 10, Iron Foundry; 11, Steel Foundry; 12, Experimental Shop; 13, General Offices; 14, Iron Foundry.

NEWLY ORGANIZED MANUFACTURERS OF CARS, TRUCKS AND TRACTORS.

Wilmington, Del.; Consolidated Motor Truck Co.; $50,000; C. L. Rimlinger, M. M. Clancy, F. A. Armstrong.

Wilmington, Del.; Paramount Tractors Corporation; $100,000; to manufacture tractors, automobiles; John C. Draper, F. A. Armstrong, M. M. Clancy.

Wilmington, Del.; Simplex Corporation; $50,000; to manufacture and sell automobiles and chemical specialties; John C. Drake, C. L. Rimlinger, M. M. Clancy.

Wilmington, Del.; Wemoqui Co.; $50,000; to manufacture and sell trucks and tractors; F. D. Buck, H. L. Horty, J. D. Froek.

South Bend, Ind.; Victory Tractor Co.; $250,000; Elmer Sefton, Frank Hamilton, F. D. Henzie, W. S. Reed, Lester McCullough, Roy C. Kanouse.

Dubuque, Ia.; The Liberty Tractor Co.; $300,000; Edgar Jerome, Paul Klumb, W. J. Klumb.

Boston, Mass.; Perrine Co.; $90,000; to deal in power vehicles for use on land, air or water; Lester Perrine, C. E. Lawrence, J. W. Compton.

East St. Louis, Mo.; Bagley Motor and Tractor Co.; $50,000; Harold L. Bagley, Samuel Breadon, W. Arthur Stickney, Lon D. Hocker.

Newark, N. J.; Diamond T Motor Truck Sales Co.; $125,000; to manufacture automobile trucks.

Jersey City, N. J.; M. J. Ford Manufacturing Co. of New Jersey, Inc.; $50,000; John Tyler, Jacob Kushner, Anna J. Morrell.

Binghamton, N. Y.; The Ogden Corporation; $100,000; to manufacture machines, devices and patents pertaining to motor vehicles, motors and engines; W. H. Ogden, W. G. Phelps, F. W. Welsh.

New York, N. Y.; Biddle Motor Sales Corporation; $25,000; to manufacture motor vehicles, engines, motors, boats and aeroplanes; L. H. Reuter, E. L. Williams, R. B. Dawson.

New York, N. Y.; Vim Truck Corporation; $25,000; to manufacture cars, motor engines; C. S. Rice, W. A. Rogers, S. R. Howard.

Cleveland, O.; Kohl Tractor Co.; $5000; Edward Kohl, William Dornback.

Cleveland, O.; Reynolds Motor and Tractor Co.; $90,000; J. F. Reynolds, W. M. Opre, C. N. Green, J. H. Reynolds, W. E. Branch.

Continental, O.; Continental Tractor Co.; $100,000; Will H. Lowe, Charles T. Hunt, Charles Varner, S. D. Hensel, E. F. Dillinger, L. F. Knall, G. E. Coleman, C. E. Wright.

Philadelphia, Pa.; Ebert Motor Truck Co.; $75,000; Carl Ebert.

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Douglas, Ariz.; Arizona Auto Accessory Co.; $20,000; H. B. Sisk, Charles R. Scott.

Phoenix, Ariz.; MacArliess Tire Co.; $100,000; E. Pomeroy, H. S. Standage, John T. Reese.

Los Angeles, Cal.; W. D. Newerf Tire Co.; $10,000; William D. Newerf, A. G. Newerf, R. C. Gortner.

Dover, Del.; Liberty Sole and Tire Co.; $250,000; K. W. Brier, Charles Uverfroth, James J. Crawford.

Dover, Del.; Robert L. Ream Co.: $15,000; to deal in rubber goods; Frank M. McKelevery, Harry W. K. Smith, John T. Akers.

Dover, Del.; Surety Tire and Rubber Co.; William L. Burgess, Otto L. Menzing, A. N. Koerner.

Chicago, Ill.; Northwest Auto Sales Co.; $10,000; E. H. Forke, R. C. Fritsch, W. L. Wenger.

Ottawa, Ill.; Independent Supply Co.; $5000; to deal in automobile accessories; John F. Shaiper, John J. McDermott, W. W. Curtis.

Des Moines, Ia.; The Metal Auto Parts Co.; to manufacture accessories; J. Messenger, T. A. Tooey, E. M. Messenger, C. A. Messenger.

Kansas City, Mo.; Beery Porter Tire Co.; $20,000; to distribute Norwalk tires; John W. Beery, Jesse L. Porter.

Kansas City, Mo.; Progressive Tire Corporation; $20,000; to sell and deal in job tires; F. H. Lynch, J. C. Price, E. R. Flescher.

Newark, N. J.; Newark Bearings Co.; $50,000; to deal in auto accessories; Abbott Werner, Julia Werner, Saul Werner.

Trenton, N. J.; United Auto Supply Stores, Inc.; $50,000; Raymond H. O'Connor, Gertrude O'Connor, Florence Kenny.

Santa Fe, N. M.; Phelps-Dodge Supply Co.; $25,000; W. A. Haskins, J. W. Puckett, Charles A. Austin.

Brooklyn, N. Y.; Eureka Auto Products Corporation; $100,000; Arthur D. Middleton, George B. Glover, John F. Mason.

Buffalo, N. Y.; The Vacuum Glass Spark Corporation; $30,000; to manufacture auto accessories, including spark plugs; M. L. Joyce, M. White, J. Hoyt.

New York, N. Y.; American Auto Repair and Welding Corporation; $5000; S. W. Kroll, L. I. Grossfield, M. Grossfield, Jr.

New York, N. Y.; American Tire Filler Corporation; $35,000; to buy and sell "Essenkay" and auto tire filler; S. Yerman, A. D. Kubis, D. Cohn.

New York, N. Y.; The Eagle Puncture Proof Tire and Wheel Co., Inc.; $450,000; to manufacture tires and wheels for automobiles, also motors; J. B. Thiess, J. E. Harrigan, G. S. Gallagher.

New York, N. Y.; Vacuum Muffler Corporation of America; $200,000; to manufacture muffler appliance, motors, autos; E. Christopherson, T. L. Thompson, L. E. Johnson.

Cleveland, O.; National Automobilists' Protective Corporation; $10,000; to deal in accessories and supplies and render general automobile service.

Cleveland, O.; Perfection Tire Co.; $15.-000; H. M. Farnsworth, S. G. Taylor.

Oklahoma City, Okla.; Oklahoma Storage Battery Co.; $25,000; J. H. Schmidt, W. H. Stueve, H. K. Herbert.

Portland, Ore.; Allen & Hebard Co., to handle accessories and tires; Robert E. Allen, Lockwood Hebard.

Philadelphia, Pa.; Storage Battery and Appliance Co.; $150,000; William Knoblock, Donald G. Scott, William J. Graham.

Providence, R. I.; Standard Motor Products Co.; $100,000.

El Paso, Tex.; Younge Auto Supply Co.; $25,000; Roy C. Younge, A. G. Drake, Charles A. Kinkel.

GARAGES AND REPAIR SHOPS.

Chicago, Ill.; Juliet Auto Sales and Garage Co.; $5000; F. V. Healy, E. V. Peterson, A. V. Carney.

Mt. Carmel, Ill.; Fourth Street Garage; $10,000; to conduct a garage business.

Portland, Me.; Falmouth Garage and Tire Co.; $50,000; to conduct a garage business in all branches.

Audubon, N. J.; Kinsessing Garage Co.: $25,000; J. A. Belso, George W. Miller, Frederick G. Blessing.

Buffalo, N. Y.; E. J. McNamara & Co.; $25,000; to operate a garage business; F. M. Diem, M. J. McNamara, E. J. McNamara.

East Orange, N. J.; Eclipse Garage Co.; $100,000; A. Axle, M. Holsen, Richard Mortensen, Dr. Will S. Bakke.

Mt. Vernon, N. Y.; Jenks' Central Garage, Inc.; $5000; M. Jenks, G. A. Jenks, E. S. Jenks.

New York, N. Y.; Eighth Street Garage, Inc.; $40,000; to conduct a garage: H. Davidowitz, W. Etra, B. Shapiro.

New York, N. Y.; Liberty Auto Repair Co.; $5000; W. F. Brunssen, G. Brunssen, C. E. Kirchner.

New York, N. Y.; 148th Street Garage; $50,000; M. Pomerange, L. Aldeman, A. Weilberg.

New York, N. Y.; 27th to 28th Street Garage; $5000; A. Fiducci, A. Billeci, F. Billeci.

White Plains, N. Y.; Purcer Place Garage; $1000; to conduct a general garage business and to buy and sell automobiles; Louis Yelin, Anna Yelin, Jacob Spitzer.

Cleveland, O.; Euclid 13th Motor Repair Co : $10,000; W. H. Seagrave, M. H. Gall.

Cleveland, O.; Johnson Garage Co.; $10,000; S. B. Merry, A. C. McCoy.

Portsmouth, O.; Oakland Garage Co.; $5000; H. E. Frowine, William L. Cook, Emma K. Butcher, Catherine B. Hofner, Mabel L. Knost.

Enid, Okla.; Automobile Improvement Co.; $10.000; W. S. Marr, H. G. McKeever, Maud Watts.

Tahlequah, Okla.; Ideal Garage and Motor Co.; $5000; S. H. Redburn, John R. Hicks, W. S. Barnes.

Lubbock, Tex.; Lubbock Buick Garage Co.; $10,000; J. L. Higginbotham, C. L. Griffith, J. W. Higginbotham.

Wortham, Tex.; Quick Service Garage; $4500; M. A. Ripley, M. Thornton, W. C. Butler.

Milwaukee, Wis.; Big Garage Co.; $99,000; A. J. Reamer, C. F. Johnson, Fred W. Cook, J. F. Henninger, B. B. Wood, W. R. Pruner.

Waupun, Wis.; Meiklejohn Garage Co.; $50,000; James W., John, Alice, Aggie Meikel.

PARTS AND FITTINGS MAKERS.

Dover, Del.; The Lake Breeze Motor Co.; $100,000; to manufacture motors and compressed gas, air and gas devices.

Dover, Del.; Multi-X Motors Co.; $1,000,000; to manufacture engines and motors; Samuel C. Wood, A. D. Suess, L. B. Phillips.

Wilmington, Del.; Paddock Rotating Cylinder Gasoline Engine, Inc.; $350,000; Ferris Giles, E. W. Haslam, E. Lemon.

Detroit, Mich.; Michigan Motors Co., Inc.; $1000; Elmer Freshwater, Samuel M. Gay, George C. Vanbeseler.

New York, N. Y.; Electric Motors Corporation; $20,000; G. Katz, S. Ferdman, S. Wetzler.

New York, N. Y.; Elsey Motor Co.; $30,000; J. B. and K. I. Elsey, J. H. Boyle.

Middlebury, Vt.; The Auto License Holder Co.; $50,000; to manufacture license holders to be placed on automobiles; Harry E. Palmer, R. Sturtevant, Rufus Wainwright, A. D. Wright.

Milwaukee. Wis.; Service Auto Spring Co.; $9000; Charles P. Mosden, Jr., Jacob Widmeyer.

DEALERS IN AUTOMOBILES AND MOTOR TRUCKS.

Montgomery, Ala.; Kirven Motor Car Co.; $10,000; J. A. Kirven, B. F. Wolfe, L. A Porter, N. A. Reager.

Little Rock, Ark.; Automotive Service Co.; $10,000; F. L. Oller, H. R. Oller, R. D. Oller.

Phoenix, Ariz.; Phoenix Motor Co.; $50,000; Y. L. Holmes, R. C. Greth.

Dover, Del.; Multiz Motors Corporation; $1,000,000; Samuel C. Wood, A. D. Suess. L. B. Phillips.

Dover, Del.; New Standard Manufacturing Co.; $250,000; I. N. Lofland, George W. Morgan, Frank Johnson.

Wilmington, Del.; Consolidated Motor Truck Co.; $50,000; C. L. Rimlinger, M. M. Clancy, F. A. Armstrong.

Chicago, Ill.; Hartie Motor Co.; $10,000; Albert S. Louer, Myrtle Fisher, C. G. McLaren.

Chicago, Ill.; Interurban Motor Dispatch Co.; $10,000; A. S. Louer, G. C. McLaren, Myrtle Fisher.

Springfield, Ill.; Washington Auto Sales Co.; $5000; P. M. Kwentus, J. M. Merrick, E. E. Luke.

Rock Rapids, Ia.; Interstate Automobile Insurance Co.; $200,000; E. A. Tonne, H. T. Hampe, N. Hampe, C. W. Bradley, J. J. Maloney, Simon Fisher, E. J. Riegel.

Louisville, Ky.; Yager Motor Car Co.; $15,000; A. M. Dick, F. Eggenspiller, Roy Yager.

Saginaw, Mich.; Central Foundry Co.; $10,000; T. S. Merrill, H. H. Rice, H. L. Barton.

St. Louis, Mo.; Leach-Brouster Automobile Co.; $8000; H. G. Brouster, Charles R. Lewis, F. C. Sharp.

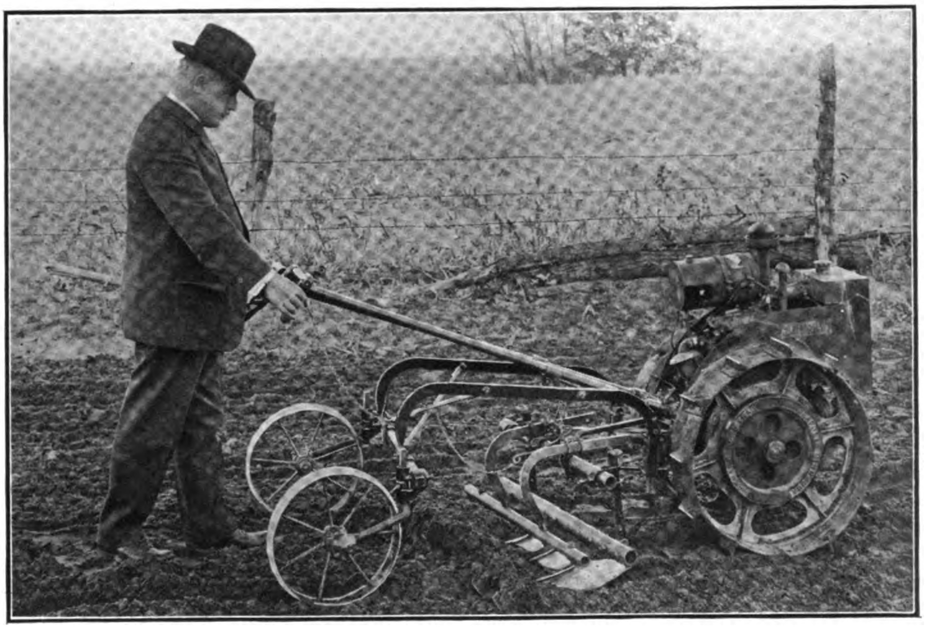
Camden, N. J.; Philadelphia and New York Transportation Co.; $125,000; Edward H. Horne, W. Randles, Chapman G. Burroughs.

Newark, N. J.; General Omnibus Co.; $150,000; to operate bus lines; Bella Sukor, Aaron Marder, Samuel J. Kaufman.

Santa Fe, N. M.; Phelps-Dodge Supply Co.; $25,000; W. A. Hawkins, J. W. Puckett, Charles A. Austin.

Buffalo, N. Y.; The Manufacturers and Traders Storage Warehouse and Trucking Corporation; $10,000; M. B. Ullman, J. Ullman.

Buffalo, N. Y.; Stratton Eng. Laboratories; $10,000; to deal in motor cars and aircraft; F. G. Hanssen, J. E. Barry, C. N. Oatman.



Beeman Garden Tractor with a Cultivating Implement Attached—It Will Draw a Seven-Inch Plow or Similar Farm Tools.

Buffalo, N. Y.; Wonder Motor Sales Corporation; $25,000; to conduct an automobile business; M. J. Horn, A. C. Campieri.

New York, N. Y.; Advance Auto Service Corportaion; $5000; to conduct a trucking business and touring and sight seeing cars; A. Guggenheim, H. A. Lederer, M. Lang.

New York, N. Y.; Dusty Rhodes Motor Transit Co.; $5000; S. Mitchell, E. Joseph, S. L. Rosenberg.

New York, N. Y.; Electric Motors Corporation; $20,000; G. Katz, S. Feldman, S. Wetzler.

New York, N. Y.; Transatlantic Motor Storage Co.; $10,000; W. E. Van Sise, V. G. Souder, R. G. Lewis.

New York, N. Y.; Transco Corporation; $12,000; J. R. Chrisholm, G. E. Parks, C. F. Goold.

Rockaway Beach, N. Y.; Collins Stevedoring and Trucking Co.; $10,000; J. J. Collins, H. Ford, R. B. Perrineo.

Syracuse, N. Y.; C. W. Bull Motor Car Co.; $12,000; A. L. Cox, J. H. Cox, C. W. Bull.

Akron, O.; Merchants Auto Dispatch Co.; $15,000; H. C. Batchelder, W. G. Harris, M. H. Rigle, D. W. Mason, L. I. Moore.

Cleveland, O.; Cleveland-Lexington Motor Co.; $10,000; Don R. Sipe, S. W. Dillinger, L. F. Livingston, C. N. Bowen.

Columbus, O.; Central States Motor Co.; $25,000; Henry B. Allbright, Daniel J. Hallissy, Raymond Grant, Lillian C. Toland, A. V. Sawyer.

Cleveland, O.; Ralph Motor Sales Co.; $25,000; N. C. Ralph, M. Geibricher, Thomas Fricker, J. L. Smith and L. M. Nock.

Youngstown, O.; Service Motor Truck Co.; $50,000; H. A. Wiley, William Lewis, O. R. Cubbison, Alfred Howell, Mary A. Wiley.

Isabel, Okla.; Isabel Auto Co.; $15,000; H. C. Newton, D. C. Flenniken, N. Roberts.

Oklahoma City, Okla.; Packard-Oklahoma Motor Car Co.; $40,000; W. J. Parrish, D. T. Shelton.

Oklahoma City, Okla.; Walker Motor Sales Co.; $25,000; R. J. Walker, C. W. Crum, H. R. Grisby.

Philadelphia, Pa.; Entrikin Co.; $50,000; to deal in automobiles.

Philadelphia, Pa.; Fidelity Automobile Service Association; $10,000; to furnish legal services to owners of automobiles; Samuel J. Myers, Robert M. Wilbur, Hyman Shane.

Pittsburgh, Pa.; Kelly-Myers Motor Car Co.; $6000; James E. Myers, John H. McCloskey, Paul E. Myers.

Columbia, S. C.; The Foreman-Howard Motor Co.; $5000; W. R. Foreman, president and treasurer; George B. Lockhart, secretary.

Memphis, Tenn.; Empire Motor Car Co.; $50,000; C. M. Bishop, W. L. Huntley, Jr., F. P. Carpenter.

Memphis, Tenn.; The Richardson Motor Sales Co.; $50,000; G. S. Richardson, Charles Lyle, M. V. Richardson.

Henderson, Tex.; Henderson Motor Co.; $10,000; T. B. Mayfield, W. E. Norvell, Homer Harris, Jr.

Houston, Tex.; Four Sevens Auto Livery of Houston; $60,000; O. M. Lipper, Phil Sulzabacher, Emil Lipper.

San Angelo, Tex.; Buck-Cox Auto Agency Co.; $10,000; Walter Buck, J. B. Cox, L. B. Cox.

Madison, Wis.; Madison Machine Tool Co.; $25,000; E. J. McEachron, Thomas C. Olson, E. A. Fuller.

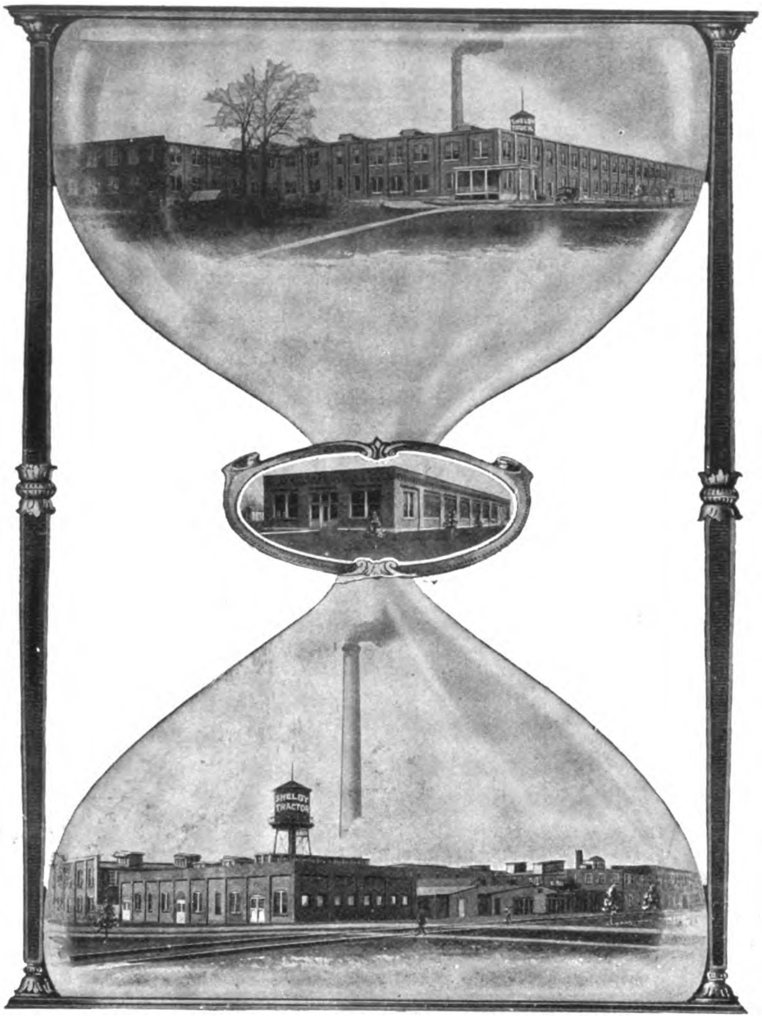
Milwaukee, Wis.; Marsh Motor Truck Co.; $15,000; A. J. Marsh, August Schmidt, Carrie M. Marsh.

Milwaukee, Wis.; William H. Krueger Motor Co.; $5000; William H. Krueger, Clara Krueger, Julian Olds.

Milwaukee, Wis.; Nash Motors Co.; $250,000; A. P. Conman, Jr., Oscar W. Leser.

RECORD OF NEW BUILDING PLANS

Contracts Made and Plans Contemplated for Alterations or New Buildings



Three Views of the Recently Acquired Plant of the Shelby Tractor and Shelby Truck Co., Shelby, O.

CONTEMPLATED PLANS AND SPECIFICATIONS.

Headland, Ala.; Adams Auto Co.; one-story garage, 65x100; $8000.

Montgomery, Ala.; J. Durr; one-story garage; $10,000.

Montgomery, Ala.; Greeson Construction Co.; one-story brick garage composition roof; cement floor; for L. C. Cardinal; $10,000.

Little Rock, Ark.; Thalman & Ried; one-story garage at 1516 Louisiana street; $4000.

Perry, Ark.; Simmons & Green; one-story brick garage, 50x60; concrete roof; $8000.

Warren, Ark.; R. Bond; one-story garage at Third and Maple streets; 90x90.

Los Angeles, Cal.; F. Winstel; one-story garage; $9200.

Sacramento, Cal.; J. D. Lauppe; one-story garage, 50x100.

San Francisco, Cal.; Olympic Garage; one-story garage; $20,000.

Hartford, Conn.; Roxxo Brancieri, 171 Front street; two-story public garage, 32x56; $10,000.

Hartford, Conn.; P. J. Nielsen, 29 Preston street; one-story garage, 55x56; $4000.

New Haven, Conn.; J. A. Weiner, 105 Howe street; two-story garage, 50x60.

New Haven, Conn.; Max Rosoff, 90 Park street; one-story private garage, 27x47; $6000.

Miami, Fla.; J. T. Weathers; one-story garage; $2300.

Miami, Fla.; J. K. Dorn; three-story reinforced concrete garage, 100x150; $30,000.

St. Petersburg, Fla.; H. Ferguson; one-story garage; $3000.

Washington, D. C.; Harry Wardman, 1430 K street, N. W.; three-story garage. Woodly road, West Connecticut avenue; $25,000.

Parma, Ida.; L. L. Mundle; one-story garage; $10,000.

Chicago, Ill.; Universal Furniture Co., care A. Charvat, 1803 S. Ashland avenue; one-story private garage, 25x35.

Chicago, Ill.; Anton Charvat, 1803 S. Ashland avenue; two-story garage and chauffeur's quarters, 25x50; $6000.

Chicago, Ill.; Percy Coffin, 730 S. Dearborn street; one-story garage, 60x100; $15,000.

Chicago, Ill.; Frank M. Fulton, 6359 Stewart avenue; one-story garage; $20,000.

Chicago, Ill.; Yellow Car Garage; one-story garage; 110x300.

Huntly, Ill.; A. P. Dippold; one-story garage, 100x100; $12,000.

McComb, Ill.; James Motor Sales Co.; one-story garage, 43x143.

Marion, Ill.; F. B. Davis; one-story garage, 95x100.

Mattoon, Ill.; Joseph Curter; one-story garage, 50x133.

O'Fallon, Ill.; O. C. Joseph; one-story garage, 50x150; $10,000.

Streator, Ill.; Standard Oil Co., 900 S. Michigan avenue, Chicago; one-story service station; $3000.

Viola, Ill.; A. G. Frakes; one-story garage, 60x120.

Warren, Ill.; W. E. Stockpole; two-story garage and storage station, 60x106; $30,000.

White Hall, Ill.; W. Evans; one-story garage, 50x133.

East Chicago, Ind.; E. M. Runnell, 617 Washington street, Gary, Ind.; two-story Ford sales room and garage, 112x145; $15,000.

Elwood, Ind.; B. H. Harting, Elwood Trust Co.; one-story private garage, 22x90.

Farmland, Ind.; Oscar Hubbard; one-story garage, 40x107; $6000.

Flora, Ind.; William Eckerle; two-story public garage, 42.6x100.

Huntington, Ind.; Newton Cameron, 321 Warren street; one-story public garage, 40x100; $7000.

Charles City, Ia.; Cedar Rapids Oil Co., Cedar Rapids, Ia.; one-story filling station, 13x20; $2800.

Council Bluffs, Ia.; Penn Consumers Oil Co.; one-story garage, 30x40; $2000.

Council Bluffs, Ia.; Penn Consumers Oil Co., 8th street and 9th avenue; one-story oil filling station, 12x16; $1200.

Dennison, Ia.; J. Tran & Sons; one-story garage, 50x130.

Sutherland, Ia.; John Brown; one-story garage; $8000.

Arkansas City, Kan.; E. J. Collins; one-story garage, 50x123; $12,000.

Baxter Springs, Kan.; R. M. Gilman; one-story garage, 50x142.

Hays, Kan.; Alexander Sheller; one-story garage, 50x100.

Wichita, Kan.; W. D. Jochems, 915 Beacon building; one-story garage, 50x140; $17,000.

Yates Center, Kan.; Wallace & Landus; one-story garage, 76x110.

Louisville, Ky.; Cook Benevolent Institute; one-story brick garage; $25,000.

Louisville, Ky.; A. Markham Co.; one-story fireproof garage, 25x160. Lessee, Columbia Motor Truck Co., 119 South Seventh street.

Louisville, Ky.; Standard Oil Co.; one-story fireproof garage at 426 W. Bloom street; $11,500.

Louisville, Ky.; Louisville Automobile Painting Trimming Co., 727 S. Fourth street; one-story auto repair shop, 50x132.

New Orleans, La.; James D. Cathey; one-story salesroom and service station, 50x158; $25,000.

Baltimore, Md.; E. Cooper; one-story garage, 50x160, at 37-41 W. Cross street.

Baltimore, Md.; D. Eidman; one-story garage, 74x75; $3000.

Baltimore, Md ; A. Schauman; one-story garage, 60x81, at 327 N. Fremont avenue; $4500.

Baltimore, Md.; J. R. I. Collison; one-story garage, 15.9x17.6, rear 2320 Hartford road.

Baltimore, Md.; Alexander Katzenberg, 1139 Pennsylvania avenue; eight one-story brick garages, each 10x18; slag roof; at 2304 Eutaw place.

Baltimore, Md.; Northeastern Amusement Co., 1905 E. Hoffman street; one-story public garage, 30x70, at 1349 N. Jay street.

Boston, Mass.; M. Barsky; one-story garage, 124x200, at 23 Green street; $50,000.

Boston, Mass ; William London; one-story garage at 19 Fordham street; $60,000.

Boston, Mass.; Joseph Aieta, 8 Barry park; one-story private garage, 20x20.

Fall River, Mass.; Stevens Manufacturing Co.; one-story garage, 28x86.

Nantucket, Mass.; Killen Brothers; one-story public garage, 50x75; $5000.

Grayling, Mich.; George Burke; one-story garage, 75x175.

Ada, Minn.; Peter Matson; one-story garage, 54x98; $20,000.

Buhl, Minn.; Dr. A. W. Shaw; one-story private garage, 28x88; $3000.

Verndale, Minn.; H. B. Boyer; one-story garage, 50x80.

Clarence, Mo.; Clarence Auto Co.; one-story garage, 100x140.

Diamond, Mo.; E. Ryno & Son; one-story garage, 50x100.

Hartville, Mo.; O. Young & Son; one-story garage, 55x100.

Kansas City, Mo.; W. R. Remick, 6503 E. 37th street; one-story garage, 45x90; $2000.

St. Louis, Mo.; W. Hartwell; one-story garage, 87x137.

St. Louis, Mo.; G. Barnett; one-story garage, 50x140.

St. Louis, Mo.; Girard Realty Co.; one-story brick garage; $5000.

St. Louis, Mo.; Yale Garage and Motor Car Co.; one-story garage; $50,000.

St. Louis, Mo.; Albert G. Eckhardt; one-story garage, 100x105; $5000.

Sidney, Mont.; Weibber Brothers; one-story garage, 60x100.

Valier, Mont.; Maple Garage; one-story garage, 50x140.

Lexington, Neb.; T. S. Davis & Son; one-story garage and machine shop; $8000.

Lincoln, Neb.; State Board of Commissioners: one-story garage, 32x36; $6000.

Omaha, Neb.; State Board of Commissioners: one-story garage, 34x36; $2000.

Omaha, Neb.; Nebraska Auto Co.; one-story garage, 87x136, at 19th and Howard streets.

Petersburg, Neb.; E. S. Beckwith; one-story garage, 50x150; $10,000.

Summer, Neb.; L. Johnson Hardware Co.; one-story garage, 50x80.

East Orange, N. J.; Morris R. Lamb, 61 Amherst street; 24 individual garages; $9000.

Jersey City, N. J.; Anton Mueller, 108-10 Paterson street; one-story garage, 18x50; $2000.

Newark, N. J.; John C. Eisele, 760 Broad street: one-story auto service station, 100x112.

Newark, N. J.; Richard Reininger, 262 Lafayette street; one-story garage, 18x84; $4500. Lessee, Newark Star Publishing Co., 15 Branford place.

Newark, N. J.; A. Staz: one-story garage, 25x116: $10,000.

Newark, N. J.; A. Panduno: one-story garage, 40x60; $45,000.

Binghamton, N. Y.; Larrabbee Devo Motor Truck Corporation, 28 Washington street: one-story garage, 30x40: $7000.

Brooklyn, N. Y.; David Sirota, 1359 Eastern Parkway: one-story garage, 100x100: $20,000.

Brooklyn, N. Y.; Marie Barbella, 265 N. Sixth street: one-story public garage, 45x52: $2500.

Brooklyn, N. Y.; Realty Supply Co., 26 Court street: one-story garage, 100x100: $20,000.

Brooklyn, N. Y.; Nathan Stern, 748 Flushing avenue; one-story public garage, 100x100: $30,000.

Brooklyn, N. Y.; Isaac Schmitzer, 154 Union street: one-story garage, 50x99; $16,000.

Brooklyn, N. Y.; Hans Skowgar, 1684 Nostrand avenue: one-story garage, 24x62: $4000.

Brooklyn, N. Y.; Louis Spiegel: one-story garage, 24x24: $1800.

Brooklyn, N. Y .; John Hein, northeast corner Rogers and Foster avenues; one-story garage, 20x28; $2000.

Brooklyn, N. Y.; Aaron Benjamin, 1460 Eastern Parkway: one-story garage, 56x132: $20,000.

Brooklyn, N. Y.; Edna Melani, 2811 W. 16th street; one-story garage, 30x80: $5000.

Brooklyn, N. Y.; Morris Walsk, 1414 54th street, 2½-story garage, 26x55: $3000.

Brooklyn, N. Y.; Joseph Puglisi, 119 Carroll street; one-story garage, 25x95; $4000.

Brooklyn, N. Y.; Safe Construction Co., 125 Bristol street; one-story garage, 100x200; $50,000.

Brooklyn, N. Y.; Motor Truck Drayage Co.; one-story garage, 109x200; $15,000.

Brooklyn, N. Y.; Harry Rosenthal, 1287 St. Marks avenue; one-story garage, 75x100; $25,000.

Brooklyn, N. Y.; Realty Construction Co., 1422 Pitkin avenue; one-story garage; $20,000.

Brooklyn, N. Y.; Frederick Ochase; two-story garage; $11,000.

Brooklyn, N. Y.; L. Johnson Hardware Co.; one-story garage, 50x80.

Brooklyn, N. Y.; P. Selvice; one-story garage at 58th street and 12th avenue; $1000.

Brooklyn, N. Y.; H. J. Krapp, 114 E. 16th street; two-story garage, 195x230 and 105x239.

Brooklyn, N. Y.; Kalmen Ross, 77 Gerry street; one-story garage, 100x100; $20,000.

Brooklyn, N. Y.; Nathan Rayfield, 826 Nostrand avenue; one-story garage, 50x100; $10,000.

Brooklyn, N. Y.; Herman H. Lucke, 412 48th street; one-story garage, 11x18; $4400.

Brooklyn, N. Y.; Vaughan Properties Corporation, 441 Washington avenue; six one-story garages; $15,000.

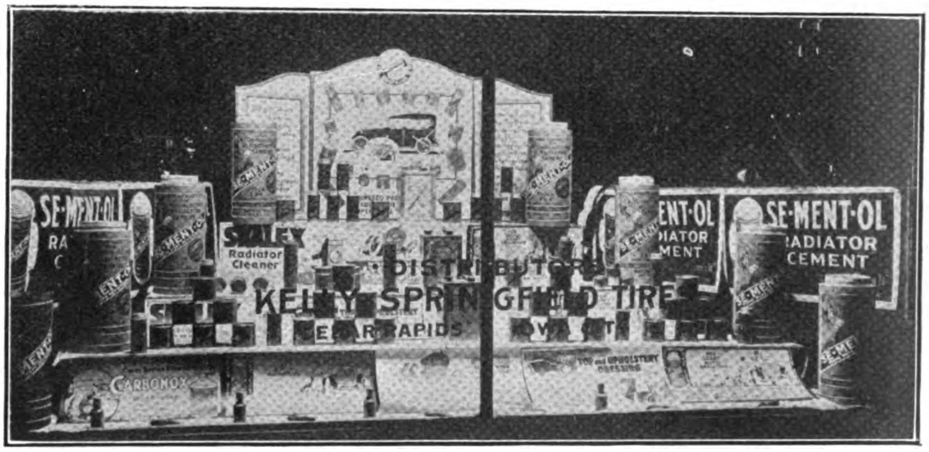
Brooklyn, N. Y.; Estate Rose Brocker, 146 Rutland road; one-story garage; $12,000.

Brooklyn, N. Y.; Broadway Penn Garage Co.; one-story garage, 100x100; $75,000.

Brooklyn, N. Y.; Dave Puvin and William Weingarten, 184 Greenpoint avenue; one-story garage; $20,000.

Brooklyn, N. Y.; Cohn Brothers, 363 Stone avenue; one-story public garage, 100x100; $28,000.

Brooklyn, N. Y.; John Moran, 9 Second place; one-story garage, 20x75; $3000.



"Norwesco" Products Made by the Northwestern Chemical Co., Marietta, O., Attractively Displayed in the Show Window of the Western Auto Specialty Co.,' Cedar Rapids, Ia.

Brooklyn, N. Y.; Thomas Anderson, Clifford place and Calyn street; one- story-garage, 25x34; $2500.

Brooklyn, N. Y.; Jessie Kestenbaum, 229 Sixth avenue; one-story garage, 100x100; $20,000.

New York, N. Y.; Lasky Motor Corporation; one-story garage, 100x100, at Montrose avenue and Leonard street.

New York, N. Y.; Lurwell Realty Co.; one-story garage, 100x200, at First street and Driggs avenue.

New York, N. Y.; William McLoughlin Co.; one-story garage, 75x99, at 651-55 W. 131st street.

New York, N. Y.; J. T. Stanley: one-story garage, 40x98; $7000.

New York, N. Y.; R. A. Wallace; one-story garage at 11th avenue and 54th street; $3500.

New York, N. Y.; A. J. Schwarzler, 369 E. 167th street; two-story public garage, 123x256.

New York, N. Y.; Tiebout Avenue Co., Inc., 119 Parker avenue; one-story garage, 49x97; $10,000.

New York, N. Y.; Hencken Realty Co., 543 W. 28th street; one-story garage; $5000.

New York, N. Y.; Estate John Cullen, 724 St. Nichols avenue; one-story garage, 100x275; $7000.

New York, N. Y.; William Gounell, 1001 Intervale avenue; two-story garage, 70x200; $30,000.

New York, N. Y.; David Wilson, 817 W. 49th street; one-story garage, 50x100; $25,000.

New York, N. Y.; John Massimino, 11 W. 177th street; one-story garage, 20x20; $2000.

New York, N. Y.; Consolidated Gas Co., 130 E. 15th street; one-story cantonment service station, 18x111; $9000. Lessee, American Red Cross, 524 Fifth avenue, New York.

New York, N. Y.; Estate P. E. Guerin, 22 Jane street; one-story garage, 21x29; $2000.

New York, N. Y.; William Rosenbaum, 245 Second street; one-story garage, 22x97; $4000.

New York, N. Y.; Jacob Katz, 51 Chambers street; four-story garage, 34x92; $30,000.

New York, N. Y.; H. Aronson; one-story garage, 50x100, at 20 East 45th street.

New York, N. Y.; Cuneo & Podesta; one-story garage, 100x129, at 551 West Broadway; $100,000.

New York, N. Y.; E. B. Davis; one-story garage, 24x30.

New York, N. Y.; A. Fuller Co.; one-story garage, 150x200, at 333 W. 44th street.

New York, N. Y.; Max Hoffman: one-story garage, 30x50; $2500.

New York, N. Y.; J. Horan; one-story garage, 62x100, at 20 Fulton street.

New York, N. Y.; H. H. Jackson; one-story garage, 54x98; $75,000.

New Rochelle, N. Y.; William J. Beattey; two-story garage, 22x77x25; $3000.

Niagara Falls, N. Y.; Movis Skalarsky, 823 Ashland avenue; one-story auto accessory station, 33x50; $8000.

Syracuse, N. Y.; John Single, 525 S. Clinton street; one-story garage; $3000.

Syracuse, N. Y.; Webster C. Moulton, Union building; two-story garage and show room, 47x132; $30,000.

Syracuse, N. Y.; Webster C. Moulton, Union building; one-story storage garage, 55x55; $15,000.

Charlotte, N. C.; E. D. Latta; one-story garage and show room, 44x110, at 516 S. Tryon street; $15,000.

Charlotte, N. C.; Four C's Co.; 1½-story garage and show room, 44x180, at 520 Tryon street; $18,000.

Charlotte, N. C.; Dowling Motor Co.; one-story garage, 40x160; $45,000.

Fryburg, N. D.; R. Bryan; one-story garage, 30x32.

Monango, N. D.; W. C. Cladwell; one-story public garage, 40x80.

Cincinnati, O.; Samuel Matz, 532 Prospect place: one-story private garage, 22x22: $3000.

Cincinnati, O.; E. Mill: one-story garage, 75x120; $10,000.

Cleveland, O.; S. Teresi, 2463 E. Ninth street: one-story garage, 51x90: $5000.

Cleveland, O.; S. Weinberg; one-story garage, 60x97, at 2195 East 55th street; $18,000.

Columbus, O.; William K. Lamman, West 5th street and Central avenue; one-story garage and service station, 95x107; $15,000.

Beaver, Okla.; Phelps Brothers; one-story garage, 50x140.

Blackwell, Okla.; Z. A. Harris; one-story garage, 50x140; $18,000.

Enid, Okla.; M. E. Garber; two-story garage, 50x150; $20,000.

Duncan, Okla.; Duncan Garage; one-story garage, 55x150.

Oklahoma City, Okla.; W. J. Scrivner; one-story brick garage; $4000.

Oklahoma City, Okla.; D. R. Morris; one-story garage, 100x140.

Dufur, Ore.; Central Garage Co.; one-story garage, 52x100.

Portland, Ore.; R. F. Patterson; one-story garage, 50x100, at 10th and Salmon streets; $5000.

Portland, Ore.; C. Britchmacher; one-story garage, 50x100, at 10th and Taylor streets; $5000.

Bethlehem, Pa.; M. K. Huffman, 813 Wood street; one-story garage, 22x22; $2000.

Masontown, Pa.; Masontown Motor Car Co.; one-story commercial garage, 50x125.

Northampton Heights, Pa.; James F. Miller; one-story garage, 20x44; $5000.

Philadelphia, Pa.; J. N. Mitchell; one-story garage, 21x21, at 5812 Lincoln drive; $1200.

Kaufman, Tex.; Emmett & Carlisle; one-story garage, 50x100; $10,000.

Ozona, Tex.; R. Miller; one-story brick garage; $17,000.

Plano, Tex.; Harrington Motor Co.; one-story garage, 53x208; $10,000.

San Antonio, Tex.; H. F. Bernhardt; one-story brick garage; $3000.

San Antonio, Tex.; L. Ogo Estate; one-story garage; $4000.

San Juam, Tex.; Frank E. Powell; one-story garage, 50x100; fireproof; install machinery; $7500.

Sterling City, Tex.; Benjamin Rawl Motor Co.; one-story garage, 59x137; $14,000.

Wellington, Tex.; T. B. Starky; one-story garage, 25x110.

Parowan, Utah; Wilson & Bradfield; one-story garage, 58x113.

Norfolk, Va.; Fulton Brick Works, Virginia building; one-story brick garage, 45x124x14.

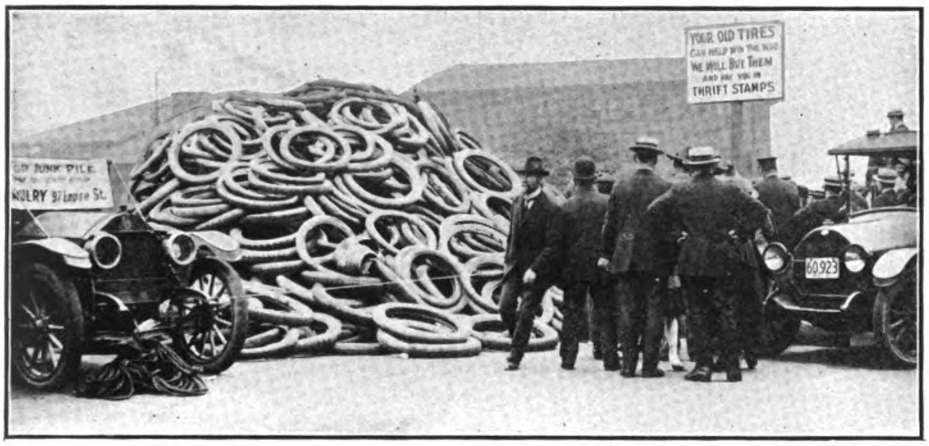
Norfolk, Va.; Franklin Motor Car Co.; Plume and Randolph streets; one-story brick and terra cotta garage, 125x125; $40,000.

Portsmouth, Va.; George R. Debnam, 1015 Queen street; one-story brick garage with ornamental front, 40x100; install heating plant; $5000.

Portsmouth, Va.; H. H. Dunn; one-story brick garage; $4500.

Bremerton Wash.; A. C. Stebick; one-story garage, 60x100; $30,000.

Ephrata, Wash.; Auburn Motor Car Co.; one-story garage, 50x90, at 320 W. Third street.



Big Pile of Tires and Shoes in Providence Which Were Purchased with War Savings Stamps and Thrift Stamps. There were 24,425 Pounds of Shoes and 766 Pounds of Tubes Turned in by Motorists, the Former Selling at Auction for 7.1 Cents a Pound and the Tubes for 19.1 Cents a Pound. The Machine Shown Sold for $66, Making a Total Net Sales of Stamps of $1946.50.

Philadelphia, Pa.; E. F. Judge; one-story garage, 20x60, at 2914 Richmond street; $2500.

Philadelphia, Pa.; Imperial Woolen Co.; one-story garage, 30x35; $2500.

Pittsburgh, Pa.; P. Brown, 6412 Darlington road; 1½-story garage and storage station; $2660.

Pittsburgh, Pa.; Robert A. Trees, 826 W. Ohio street, N. S.; one-story electric auto supply garage, 24x130.

Pittsburgh, Pa.; F. K. Seldon, 7003 Thomas boulevard; 1½-story private garage and storage station; $2500.

Pittsburgh, Pa.; Paige Brothers, 4615 Baum boulevard; one-story accessory station and garage, 25x100; $10,000.

Pittsburgh, Pa.; J. A. West, 1602 Broadway; one-story garage; $9000.

Providence, R. I.; E. A. Smith Real Estate Co.; one-story garage, 52x100.

Columbia, S. C.; L. M. Hawkins; one-story garage at 1400 Sumter street; $8500.

Nashville, Tenn.; J. W. Blair; one-story garage; $16,000.

Brownwood, Tex.; Ernest Far; one-story brick garage, 100x120; for Robert Miller; $21,000.

Fort Worth, Tex.; Burney & Tillar, 1202 Burk Burnett building; one-story brick garage, 100x100; $25,000.

Fort Worth. Tex.; G. W. Blue; one-story garage, 100x100.

Clarksburg, W. Va.; W. C. Osburn; one-story commercial garage, 62x70; $6500.

Kenosha, Wis.; Leo Klobucnik, 1319 W. Prairie avenue; one-story garage and show room, 100x147.

CONTRACTS AWARDED.

Montgomery, Ala.; Greeson Construction Co.; one-story garage, 80x80; for L. C. Cardinal; $10,000.

Hamburg, Ark.; Nally Brothers; one-story brick service station, 80x122; composition roof, concrete floors, electric lighting; for W. L. Banks; $10,000.

Chicago, Ill.; Douglas Bag Co., 8740 W. 12th street; one-story garage, 49x83; $6500.

Chicago, Ill.; Kuhter Brothers, 1134 W. Harrison street; one-story garage, 50x150; $13,000.

Chicago, Ill.; Behrens Construction Co., 1735 N. Western avenue; one-story garage, 35x50; for A. Silbar; $3500.

Chicago, Ill.; John Hammond Co., 68 W. Washington street; one-story garage, 49x109; for Hales Edward, 327 S. La Salle street; $5000.

Indianapolis, Ind.; L. B. Millikan, 1556 Lemcke Annex; one-story auto filling station for Western Oil Refining Co., 21 N. Meridian street; $10,000.

Cedar Rapids, Ia.; Mutual Investment Co.; one and two-story garage, 90x140; $26,000.

Grinnell, Ia.; Grant Inman, 1453 Summer street; one-story private garage, 18x22, for H. S. Garrett; $1000.

Waterloo, Ia.; Miller & Sadehoff, 405 Wilson building, Clinton, Ia.; one-story service station for Standard Oil Co., Dubuque, Ia.; $3500.

Waterloo, Ia.; H. A. Maine Co., Marsh Place building; one-story garage, 50x100, for Fowler Brothers; $8000.

Waterloo, Ia.; H. A. Maine Co., 305 Marsh Place building; one-story garage, 140x175, for Repass Auto Co., 17 E. 5th street; $20,000.

Baltimore, Md.; F. Hardy, 4200 Groveland avenue; one-story garage, 20x25, for Julia A. Baker, 209 Chauncey square; $2500.

Baltimore, Md.; J. J. Walsh & Sons, 1533 Maryland avenue; two-story brick and concrete garage for Fleischman & Co., 1413-15 N. Charles street.

Detroit, Mich.; Schewe Coal and Coke Co.; one-story garage, 36x95; $10,000.

Ishpeming, Mich.; O. W. Rosenthal, 80 E. Jackson boulevard, Chicago; one-story garage, 25x85, for Cleveland Cliff Iron Co.; $6000.

Minneapolis, Minn.; A. H. Heimback, 467 Roy street, St. Paul, Minn.; one-story filling station, 22x34, for Standard Oil Co., 4th and Oak streets; $2000.

Kansas City, Mo.; A. Hawkinson, 308 Commerce building; one-story garage, 50x132; $7000.

Kansas City, Mo.; G. E. Bowling, 907 Sharp building; two-story brick and terra cotta automobile building, 60x132.

St. Louis, Mo.; Theodore Ruhaack & Co., 2523 Texas avenue; one-story garage, 20x75, for L. W. Hempe, 3669 Flood avenue; $2000.

St. Louis, Mo.; Sol Abrahams & Son, Chemical building; one-story garage, 125x150; for David O'Neil.

East Orange, N. J.; Louis Keppelon, 208 Hillside avenue, Newark; one-story garage; $8000.

Elizabeth, N. J.; Carmon Di Chasare; one-story garage, 20x38, for Meyer Katz; $2000.

Buffalo, N. Y.; H. D. Best Co., 52 Vanderbilt avenue; one-story garage, 123x125, for Standard Oil Co. of New York.

New York, N. Y.; Butler Co., 18 W. 34th street; one-story public garage, 100x140, for Jackson Brothers, 101 Chambers street; $50,000.

Rochester, N. Y.; Rochester Auto Parks Co., 135 Culver road; one-story garage, 40x100; $10,000.

Cincinnati, O.; McMiller & Taft, Hulbert block; one-story private garage, 20x20, for E. E. Hall, 988 Avondale avenue; $2500.

Cleveland, O.; A. W. Kilbourne Co., 525 Sweetland building; one-story garage and sales room for K. V. Painter, 3240 Fairmount boulevard, Shaker Heights, O.; $50,000.

Cleveland, O.; Masters Mullen Co., Electric building; one-story private garage, 50x100, for Central Storage Warehouse Co., 5611 Hough avenue; $7000.

Toledo, O.; Pfaender Bros., 113 Michigan avenue; one-story garage, 21x43, for W. H. Boos, 2047 Robinwood avenue; $2000.

Warren, O.; W. Speedy; three-story public garage and sales room, 57x110, for J. E. Heasley; $30,000.

Lathan Park, Pa.; W. J. Stevens, Inc., Wyncote, Pa.; 1½-story garage, 15x25, for J. E. Cochrane.

Philadelphia, Pa.; Thomas M. Keeley; one-story brick garage, 12x20, at 4426 N. Eighth street, for R. D. Cameron; $800.

Philadelphia, Pa.; W. Percival Johnson; one-story stone and brick garage, 16.4x22, at 2414 N. 54th street, for C. T. Evans; $1000.

Philadelphia, Pa.; W. Percival Johnson; one-story stone garage, 24x34, at 5431 Wynnefield avenue, for E. G. Reyenthaler, Inc.; $3800.

Philadelphia, Pa.; Charles Smith & Son; one-story brick garage, 13.1x60, at 740 N. Holly street, for John H. Rhoades; $1000.

Philadelphia, Pa.; A. Matczak; one-story brick garage, 16x20, at 2364 Orthodox street; $500.

Philadelphia, Pa.; M. W. Ricker; one-story brick garage, 16x18, at 4905 Catharine street, for Joseph A. Potts; $800.

Philadelphia, Pa.; M. Moister & Co.; one-story iron-on-iron-frame garage, 18x20, at 4635 Tioga street, for S. A. Ireland; $560.

Philadelphia, Pa.; John Roman; one-story automobile and supply station, 10x20, at 3943 N. Broad street, for Haas Auto and Supply Co.

Philadelphia, Pa.; C. E. Biddle; one-story brick and stone garage, 16x21; southeast corner Springfield avenue and Ruby street; for F. R. Gruver; $700.

Philadelphia, Pa.; Elmer P. Bates; one-story brick garage, 14.10x24.6; south side Ogden street, West 11th street, for Max Silverstein; $800.

Philadelphia, Pa.; John J. Hurley & Co.; one-story brick garage, 13.6x26.6; east side Main street, North Harvey street, for John J. Holt; $650.

Philadelphia, Pa.; George H. Farrell; one-story brick garage, 16x150, east side 64th street, North Greenway avenue; $2500.

Philadelphia, Pa.; Thomas Cox; one-story brick garage, 14x20, north side Botanic avenue, West 79th street, for John Armstrong; $700.

Philadelphia, Pa.; M. Cylinder; one-story brick garage, 53x104, including rear addition, 16x19.6, southwest corner Sixth street and Washington avenue, for Southwark Coal Co.; $4000.

Philadelphia, Pa.; E. L. Cuthbertson; one-story frame garage, 14x16.10, south side Wigard avenue, West Ridge avenue, for E. Bennett; $600.

Philadelphia, Pa.; M. Moister & Co., one-story iron-on-iron-frame garage, west side Marvine street, North Wagner avenue, for F. Butterworth; $1600.

Philadelphia, Pa.; C. C. Snyder; one-story brick garage, 11.6x16.6, at 4428 N. Eighth street; $500.

Philadelphia, Pa.; Otto Maiz & Son; one-story brick garage, 50x80, northeast corner Howard and Thompson streets, for Paul Weiss; $7500.

Philadelphia. Pa.; Charles D. Land; one-story brick garage, 16x21, west side Marston street, North Cambria; $500.

Philadelphia, Pa.; M. Moister & Co.; one-story iron-on-iron-frame garage, 16x48, at 4828 N. 13th street, for Mary A. Lawler; $900.

Philadelphia, Pa.; M. Moister & Co.; one-story iron-on-iron-frame garage, 16x80, at 1827 Pike street, for Paul Fromm; $1500.

Philadelphia, Pa.; Joseph Bander; one-story brick garage, 36x36, at 3613-15 Witte street; $750.

Pittsburgh, Pa.; Hughes Foulkrod, Oliver building; one-story garage and machine shop, for Gulf Refining Co., Frick Annex; $200,000.

Pittsburgh, Pa.; E. F. Guthrie, 1118 South avenue, Wilkinsburg, Pa.; 1½-story private garage and storage station, for James H. Aiken, Forbes street and Beechwood boulevard; $3500.

Williamsport, Pa.; Meridith Harmer, 661 Elmira street; one-story garage, 24x36, for Standard Wood Pipe Co.; $3000.

Dallas, Texas; Munn Construction Co.; one-story brick garage for Pike & Linz; $25,000.

Fort Worth, Texas; J. W. Uttery; two-story brick garage, 50x100; gravel roof, cement and wood floors, elevators; for G. Morton.

Houston, Texas; J. Miller; one-story brick and tile garage for Southern Loan and Investment Co.; $6350.

Wheeling, W. Va.; H. A. Hawkins; 1½-story brick garage and storage station, 25x66, for Charles H. Keeson.

Milwaukee, Wis.; Frank Nowakowski, 1025 Fourth avenue; one-story garage, 24x28; $1500.

Milwaukee, Wis.; F. Luenzman Co.; one-story garage, 20x45; $2000.

Milwaukee, Wis.; H. Schmidt & Son, 684 Jackson street; two-story garage, 56x56, for Cutler Hammer Co., 13th street and St. Paul avenue; $10,000.

Hartford, Wis.; Ideal Service Garage Co.; two-story garage, 50x50.

Reeseville, Wis.; H. L. Stickney; one-story garage, 40x90; $4000.

Sheboygan, Wis.; Ernest W. Servottz Co., 116 S. Clay street; one-story garage, 14x18, for L. R. Die Chateau, 1133 S. Webster avenue.

NOBLE MOTOR TRUCK PLANS.

The Noble Motor Truck Co., Kendallville, Ind., has developed plans for factory facilities and production that are essential to the general scheme of expansion, and unless obstacles not anticipated are met the concern will be located in its new plant before cold weather. Plans for a building 192 by 100 feet, having 19,200 square feet of floor space, have been determined and specifications are being prepared for contractors' bids. This factory will be equipped with every facility for efficient manufacturing.

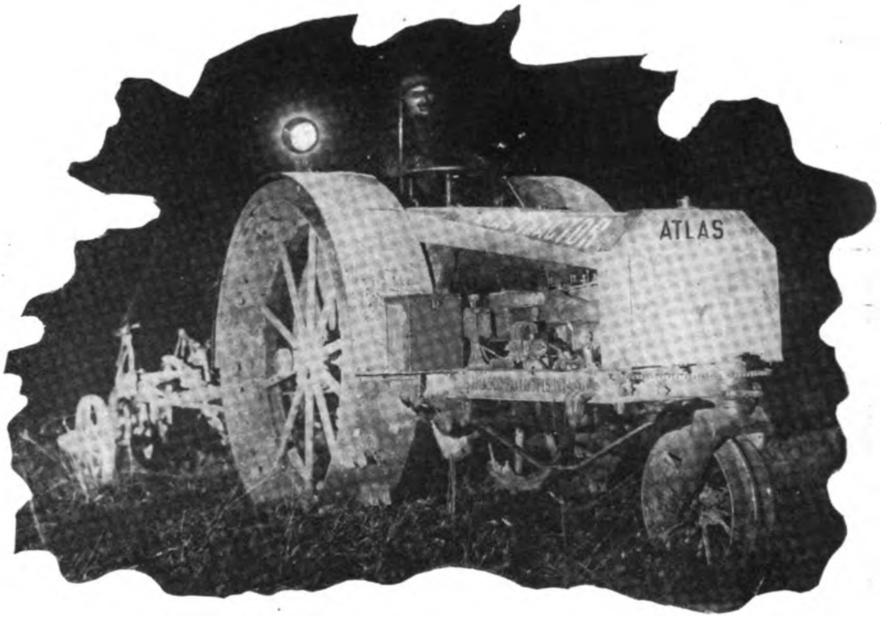
The company is now building a 2½-ton truck that is sold for $2675, and it is developing 1½-ton and four-ton chassis, which will be produced commercially in a very short time.

UNITED ENGINE AND MFG. CO. ISSUES NEW PRICE LIST.

The United Engine and Manufacturing Co., Hanover, Pa., makers of garage and machine shop equipment, has sent to the trade a new schedule of list and dealers net prices which went into effect July 1.

SAN FRANCISCO DEALERS ELECT.

Chester N. Weaver, one of the best known automobile men on the Pacific coast and head of the Chester N. Weaver Co., was elected president of the Automobile Dealers' Association of San Francisco at the annual meeting.



The Tractor Never Gets Tired and with Proper Equipment Works as Well at Night as in the Day Time.

TRADE INFORMATION EXCHANGE

A National Clearing House of the Trade's Needs for Manufacturers, Jobbers and Agents

PASSENGER CARS.

Iowa City, Ia.; Frank Kouba would like to secure the agency for gasoline passenger cars; selling price, $900 to $1300.

SPECIAL OPPORTUNITY.

Dayton, Ia.; The Strandburg Auto Co. is anxious to secure attachments for trucks.

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Santa Anna, Cal.; The Santa Anna Rubber Co., Fifth and Birch streets, wishes to secure bumpers, cements, dimmers, emblems, fire extinguishers, gaskets, gasoline, gauges, goggles, headlights, holders, hose, jacks, locks, maps, molds and cores, packing, patches, pedals, plugs, polishes, printed matter, pumps, removers (carbon), rims, rubber, scrapers, searchlights, tire accessories, vulcanizers, waste. The goods are for retail sale.

Louisville, Ky.; Lottman Automobile Cylinder Oil Co. is in the market for cans, greases and oils.

Dayton, Ia.; The Strandburg Auto Co. wants information regarding motors, searchlights, tops and parts and special bodies for Fords.

Iowa City, Ia.; Frank Kouba is in the market for bearings, brakes, brushes, bumpers, chains, clutches, fire extinguishers, gaskets, gasoline, goggles, greases, horns, hydrometers, ignition, maps, pistons, platinum, plugs, oils, printed matter, radiators, rims, screws, searchlights, shock absorbers, springs, storage systems, testers, timers, tires, varnishes.

Sioux Falls, S. D.; Dakota Motor Sales Co. would like to secure bodies, chains, hydrometers, lamps, maps and special bodies for passenger and commercial cars. The goods are to be used for Denby motor trucks.

NEW BUSINESS CONCERNS AND CHANGES OF NAMES.

The Month's Record of Transfer of Ownerships and Opening of Garages, Agencies, Branches, Service Stations and Repair Shops.

RECENT TRANSFERS OF BUSINESS OWNERSHIPS.

Alameda, Cal.; J. L. Lally has bought the entire control of the Sunset Garage.

San Francisco, Cal.; J. B. Ritter has purchased the Smith Garage, 819 Ellis street.

San Francisco, Cal.; A. E. West has bought the entire control of the Hawkins & West Tire Shop at 2330 Market street.

Bartow, Fla.; Grover C. Metcalfe has bought the Say Garage. It will be known as the Central Garage.

Danville, Ill.; J. R. Bousier has purchased a half interest in the garage of Walter Hughes, 22 South Hazel street.

Canton, Ill.; Frank Maynard has purchased the interest of John and Irvin Jabine in the St. David Garage.

Washington, Ill.; P. J. Reeb has bought the garage business, stock and accessories from Mabee Brothers.

Dunkirk, Ind.; The Square Deal Auto Co. has purchased the Dunkirk Auto Co.

Muncie, Ind.; Wachtell & Moore have bought the W. Grinnell Motor Co., located at 217 Washington street.

Glenwood, Ia.; R. B. Smith has bought the Glenwood Auto Co.

Rockwell City, Ia.; A. J. Hicks has purchased the City Garage from A. W. Baughman.

Blue Rapids, Kan.; H. F. Kaump has bought F. A. Train's interest in the Kaump Train Motor Co. He will manage the company.

Council Grove, Kan.; Robert Neiberger has bought the automobile business of Carl Lamb.

Larned, Kan.; J. O. Hunsley has bought the repair shop of A. A. Doerr.

Winfield, Kan.; The Rosebraugh Motor Co. has bought the Mogle Motor Co.

Sheboygan, Mich.; The Indian River Garage has been purchased by Hopke & Corwin.

Atwater, Minn.; Brown Brothers has sold their garage to W. H. Ginipz of Bird Island.

Kellogg, Minn.; J. R. Kelly has bought the Pioneer Garage from Leo Reister.

Waterville, Minn.; Charles Roemhilt has bought the Walter Brothers Garage and will do all kinds of repair work.

Vicksburg, Miss.; The Miller Auto Co. has bought the Clay Street Garage from Hirsh & Campbell. The entire plant and sales department has moved to the Clay street building.

Valentine, Mont.; L. H. Boiler has bought the garage which belonged to F. V. Tindall.

Carthage, Mo.; Lloyd Wise has bought a half interest in the Carthage Auto Co.

Independence, Mo.; The Bostwick Garage has been sold to J. L. Johnson.

Independence, Mo.; A. S. Maxon has bought the Service Garage at 224 North Liberty street.

Kansas City, Mo.; The P. J. Downes Motor Co. has taken the agency for the Nash truck for the western half of Missouri and all of Kansas.

Kingston, Mo.; C. E. Cawthon has sold his automobile repair shop.

Rock Port, Mo.; Barrett & Collins have bought the garage and automobile business of Townsend & Wolf.

Marshland, Neb.; T. Miller has bought a half interest in the Keeler-Coursey Garage of Alliance.

Northport, Neb.; C. H. McGrew has bought a half interest in the Keeler-Coursey Garage of Alliance.

Clarkton, N. C.; C. R. Jordan has bought the automobile business of P. R. Smith.

Rocky Mount, N. C.; R. T. Edwards has purchased the electric and vulcanizing business of Green & Smith. It will be called the Vulcanizing and Electric Co.

Berlin, N. D.; O. E. Boise has bought the Berlin Garage.

Flasher, N. D.; C. L. Kellstrom has bought the Johnson Garage.

Wahpeton, N. D.; H. H. Chrisman has bought an interest in the Wahpeton Garage Co. and has taken management of the Dahl-Bushcer Co. Garage.

Alex, Okla.; W. D. Leeper has bought the garage of Asbury & Frank.

Atoka, Okla.; Stanley Falls has bought the Atoka Garage.

Deer Creek, Okla.; D. G. Broddock has bought the garage of C. R. Almack.

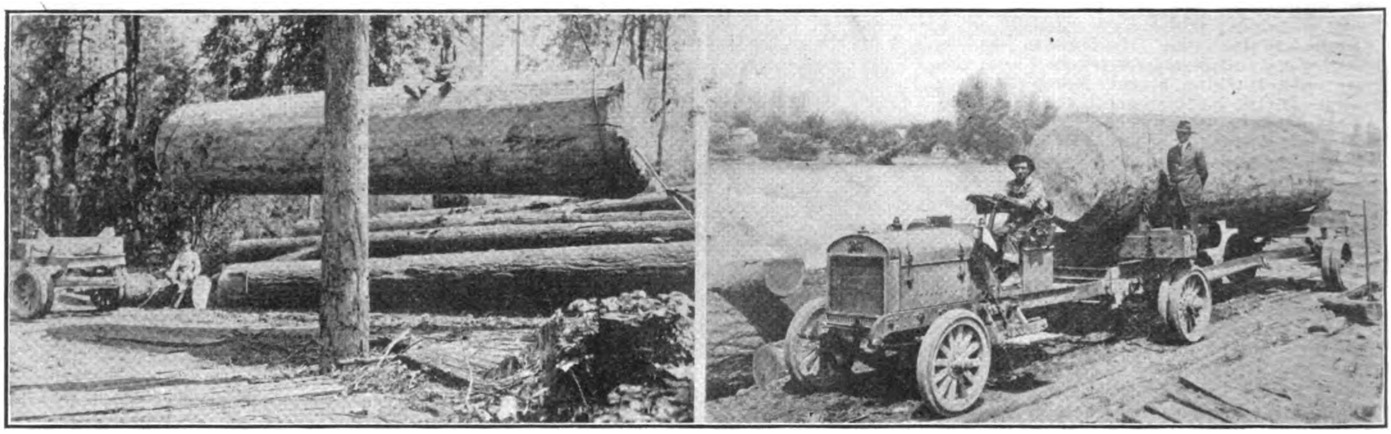
Okemah, Okla.; Henry Mansur and N. A. Taylor have bought the Okemah Garage.

Picher, Okla.; Sam Bloom has bought the Keystone Garage.

Tulsa, Okla.; The Gramm-Bernstein Motor Sales Co. has taken over the Gossol Motor Sales Co.

Abrams, Wis.; The Overland-Green Bay Co. has taken over the business and territory formerly owned by the Overland-Wausau Co. of Wausau, Wis.

La Crosse, Wis.; A. Bowman has sold his garage and repair shop at 127 North Third street to S. Berling.



Lumbering in the Northwestern Fir Forests: At Left, Log Hoisted for Loading Semi-Trailer; at Right, GMC Tractor Hauling a Single Log Containing 3880 Board Feet as a Load.

AGENCIES, DEALERS AND SERVICE STATIONS.

Alameda, Cal.; E. C. Dick has taken the Ford agency in new sales rooms at 2424 Central avenue. He also conducts a service station.

Los Angeles, Cal.; The Motors Equipment Co., Inc., has opened an agency at 1310 South Grand avenue.

Los Angeles, Cal.; Sargent Brothers have opened a tire store at 334 West Pico street.

Oakland, Cal.; The Electric Vehicle Exchange, located at Broadway and 30th street, has taken the agency for the Rauch & Lang electric. They will also operate a service station besides the sales room.

San Francisco, Cal.; Mires & Brouillet have opened a used car sales room at 20th and Valencia street.

San Francisco, Cal.; William Norrington, Jr., has opened a body building shop at Fell and Clough streets.

San Francisco, Cal.; L. E. Penniman has opened a sales room and service station at 605 Van Ness avenue.

San Francisco, Cal.; J. H. Russell has opened tire sales rooms at 276 Golden Gate avenue for Portage tires. The business will be conducted under the name of the Russell Tire and Supply Co.

San Mateo, Cal.; The American Vulcanizing Co. has opened a branch at 149 B street.

Wilmington, Del.; Andrew Johnson of the French Street Garage has taken the agency for the Rayfield carburetor.

Bloomington, Ill.; C. C. Davis has opened a tractor agency at 217 East Front street. He will distribute Cleveland tractors in the Central Illinois territory.

Lake Villa, Ill.; Al B. Maier has opened a branch tire business. This will be the first of a chain of automobile tire sales rooms along the automobile routes around Lake Villa.

Lincoln, Ill.; C. S. Foster and J. E. Ratten have opened an accessory shop at 316 East Pulaski street.

Waukegan, Ill.; C. J. Crittenden has opened a vulcanizing, retreading and repairing of automobile tires at 224 North Genesee street.

Binghampton, Ia.; The Binghampton Oil Refining Co. has a service station at the corner of Chenango and Eldridge streets.

Des Moines, Ia.; The Iowa Elcar Auto Co. has opened sales rooms at 116 Eighth street.

Anthony, Kan.; M. R. Benson has opened an automobile business.

Lawrence, Kan.; E. G. Wood has opened a salesroom at 704 New Hampshire street. S. K. Knight is the sales man for the company. Mr. Wood is the proprietor of the Lawrence Buick Co.

Topeka, Kan.; The Quick Service Tire Co. has opened a sales and service station at 527 Jackson street.

Wichita, Kan.; Helmlein Brothers is erecting a garage.

Lake Charles, La.; The Miller Brothers Motor Co. has taken the agency for the Dart truck.

Baltimore, Md.; The Fulton Motor Truck and Service Co. has established sales rooms at 1107 Maryland street and has taken a service station at 1104 Maryland avenue.

Baltimore, Md.; H. L. Rose has established a used car sales room at 29 South Charles street.

Detroit, Mich.; Maurice W. Fox has been appointed distributor in southern Michigan for Heath-Duplex bodies.

Escanaba, Mich.; H. T. Hansen has taken the agency for the simplex Ford starter.

Carrollton, Mo.; Renner & Williams have opened the Quick Service Motor Co.

Kansas City, Mo.; The Grand Auto Radiator Co. has opened a new shop at 1933 Grand avenue.

Kansas City, Mo.; Sam F. Baker Motor Co. has opened a service and sales station for the Ford car at 3358 Main street.

Kansas City, Mo.; The Pacific Welding Co. has opened a shop and office at 310 Minnesota avenue.

Kansas City, Mo.; The Wear-U-Well Tire Co. has opened a sales room and repair shop at 1410 McGee street.

St. Louis, Mo.; The Miller Tire Service Co. has changed its name to the Fishell Tire Service Co. Arthur S. Fishell is president.

St. Louis, Mo.; The Motorist Auto Supply Co. has opened a jobbing and supply house at 1832 Locust street.

St. Louis, Mo.; Mat L. Waggstaff and Mort Ratican have opened a service station at 207 Beaumont street.

St. Louis, Mo.; The Wilson Motor Co. has taken the Harroun agency.

Newark, N. J.; The Russell Tire Co. has leased two stores at 229-231 Halsey street.

Bartslesville, Okla.; The Mid-West Tire and Rubber Co. has opened a branch store at 202 East Second street.

New York, N. Y.; W. Earle Clayton has taken the agency for the Dent spark plug and has sales rooms at 90 West Broadway.

Dallos, Pa.; The Dallos Motor Co. has taken the agency for Koehler trucks.

Nashville, Tenn.; Edwin & Hicks have taken the agency for the Scripps-Booth. They are also dealers in the Nash, Oakland and Maxwell automobiles.

Nashville, Tenn.; The Nashville Buick agency is being operated by Mrs. A. S. Caldwell on account of her three sons enlisting.

Memphis, Tenn.; The Tri-State Motor Sales Corporation has opened sales rooms.

Orangenburg, S. C.; Scarborough & Harvin have been appointed dealers for the Haynes automobiles.

Portland, Wash.; J. H. Graham has opened sales rooms at 10th and Stark streets. He has the agencies for Case and Chevrolet cars.

Portland, Wash.; The Pan-American Sales and Service Co. has been opened by A. G. Onslow at 23rd and Cornell streets.

Seattle, Wash.; The Pacific Auto Top has opened at 314 East Pike street. C. J. Swanson and J. P. Andrews are the proprietors.

La Cross, Wis.; The Solberg Auto Co. has opened a repair shop.

NEW BUSINESS LOCATIONS, REMOVALS AND IMPROVEMENTS.

Little Rock, Ark.; The Cook Automobile Co. has moved to its new home on the northwest corner of Sixth and Louisiana streets.

Hayward, Cal.; John Leppia & Sons have moved to larger quarters at 828 B street, where they have installed the Hudson and Dodge Brothers automobiles.

Los Angeles, Cal.; J. K. Purdy has moved to the garage at 815 South Grand avenue. A complete stock of tires and accessories will be carried.

Los Angeles, Cal.; S. F. Seager has moved to new quarters at 1400 South Figueroa street.

Los Angeles, Cal.; The Utility Trailer Sales Co. has moved into a new building at 15th and Main streets.

San Francisco, Cal.; The Hartmann Motor Sales Co. has moved to 1910 Van Ness avenue.

San Francisco, Cal.; The Practical Vulcanizing Works has moved to 1126 Valencia street.

Belleville, Ill.; The Modern Automobile and Garage Co. has moved into new quarters at 500-504 East Main street.

Sioux City, Ia.; The Franklin Auto Co. has moved to the Kemp building at Fifth and Nebraska streets. The new quarters comprise 10,000 square feet of floor space, consisting of display rooms, parts department, a garage and repair room. They are the distributors for Franklin, Marion and Gary trucks.

Beloit, Kan.; The Farmers and Merchants Battery Co. has moved to new quarters on Main street.

Kansas City, Kan.; J. J. Perry Motor Co. has moved its garage to 845 Minnesota street.

Parsons, Kan.; The Briggs Motor Co. has moved into new quarters.

Wichita, Kan.; Price Auto Service Co. is erecting an addition to its garage.

Fulton, Mo.; The H. D. Brown Motor Co. has moved to larger quarters in the Trucker building on East Fifth street.

Independence, Mo.; The Smith Motor Co. has moved to new quarters at 313 West Maple street.

Kansas City, Mo.; George H. Daulton has moved his garage to 11 West 31st street.

Kansas City, Mo.; The Lotta Miles Tire Co. has moved to new quarters at 2305 Grand avenue.

Kansas City, Mo.; The Motor and Machinists' Supply Co. has moved to new quarters at 1817 Grand avenue.

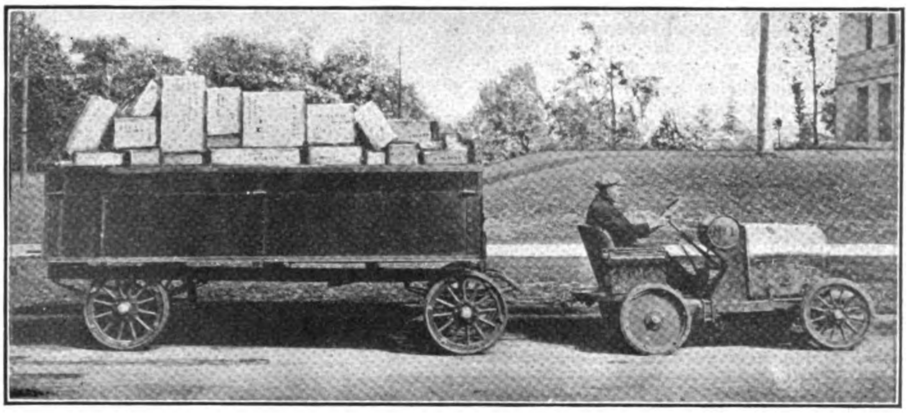
Kansas City, Mo.; The H. J. Perry Motor Co. has moved its garage to 845 Minnesota street.

St. Joseph, Mo.; The Autorium Co. has moved into its new quarters at Ninth and Felix streets.

St. Joseph, Mo.; The Fritz Tire and Vulcanizing Co. has opened new quarters at 1631 Frederick street.

St. Louis, Mo.; The Scudder Motor Co. will alter the building at 3058-68 Laclede avenue to provide for truck sales rooms. The building has a frontage of 165 feet and comprises 30,000 square feet of floor space. L. H. Amrine is vice president and general manager.

St. Louis, Mo.; The Wielandy-Reller Auto Equipment Co. has moved into new quarters at 1610 Locust street.



The "Overland Mule" Hauling Trailers at Willys-Overland Co.'s Plant, Toledo, O.

New York, N. Y.; The International Auto Exchange has moved to 150 West 55th street.

Oklahoma City, Okla.; The Charles Dudley Motor Co. has moved into its new building at 706 Broadway.

Portland, Ore.; J. H. Graham has moved to new quarters at 10th and Stark streets.

Dayton, O.; The Matthews Garage has moved to the building on 326 Main street. The building is 50x140 feet and three stories high.

Seattle, Wash.; Seels & McDarrmid have moved to their new building at 1109 Pine street.

Seattle, Wash.; The Sunset Motor Co. has moved from 915 East Pike street to Broadway and East Union street to a new three-story structure.

Tacoma, Wash.; The Mueller-Harkins Co. has moved into its garage at 722-4-6 Broadway. A complete service station has been installed.

FACTORIES, GARAGES AND REPAIR SHOPS.

Colma, Cal.; The Eldorado Garage has opened and is under new management.

Hayward, Cal.; H. D. Allen has opened a repair shop at 1040 B street, where he will specialize on the repair of Ford cars.

Los Angeles, Cal.; The Tire Construction Co. has opened a new tire shop at Seventh and Los Angeles streets.

Oakland, Cal.; G. A. Bouthiller and A. H. Jones have opened a repair shop at 2846 Broadway.

Oakland, Cal.; S. Brask & Co. have opened a garage and supply store at 2325 East 14th street. All kinds of automobile repair work will be taken care of.

Hailey, Ida.; The J. L. Fowler Auto Co. is building a new garage on Main street. It will be 44 by 65 feet and will be built of concrete.

New Orleans, Ida.; H. A. Thompson is erecting a new shop at St. Charles and Terpischose streets. The building will cost about $40,000 and contain a service station with drive in and waiting rooms and accessories will be carried.

Bloomington, Ill.; Henry Galligher has opened his garage on North Linden street.

Springfield, Ill.; The Briscoe Motor Sales Co. has opened a garage and sales agency at 223 Monroe street.

Mount Vernon, Ia.; Biderman Brothers have opened their new garage on East First street. It is 60 by 120 feet. W. Anderson is in charge of the machine shop.

Arkansas City, Kan.; Vale & Hill are erecting a garage.

Coffeyville, Kan.; Johnson & Crackel are erecting a garage.

Grenola, Kan.; Trimble & Berry are erecting a garage.

Kansas City, Kan.; The F. L. Ruckel Co. has opened the 13th Street Garage at 2100 North 13th street.

Lawrence, Kan.; John Nottingham has opened the Central Garage at 708 Massachusetts avenue.

Topeka, Kan.; The American Car and Garage Exchange has opened at 511 Quincy street.

Oswego, Kan.; French & Freeman is erecting a garage.

Quenemo, Kan.; F. C. White is erecting a garage.

Webster City, Ia.; Black Brothers have built a new garage.

Harden, Ky.; Ross & Lents are building a new modern garage. The building is 36x90 feet and will be used as an automobile storage and repair shop.

Bay City, Mich.; The Venner Auto Co. is building a new garage.

Bay City, Mich.; M. R. Solosky is building a two-story garage and sales room.

Long Prairie, Minn.; George Kimball and Hugh James have opened for business on Main street in the Wiltgen Garage.

Kansas City, Mo.; The Greenlease Motor Car Co. is building a new distributing station and sales room on McGee street. The new buildings will provide a floor space of 90,000 square feet. They have the agency for the Cadillac car.

Kansas City, Mo.; Flynn & Breting has opened a service and sales station for the Ford at 3828 Broadway.

Kansas City, Mo.; The Warmsholdt Motor Co. is building a new garage at 704-6 Prospect avenue.

St. Joseph, Mo.; The Swift Garage is being erected at Packers avenue. It will be of brick and steel construction, one story high and cost $20,000.

Manchester, N. H.; Plant Brothers are erecting a public garage on Laval street. The structure is of wood and 65 by 20 feet in size.

New York, N. Y.; Z. F. Forda is erecting a one-story brick garage, 49.2x97.9, on the southwest corner of Tremont and St. Lawrence avenues.

Monroe, N. C.; The Carolina Auto Sales is building a new garage and machine shop.

Garber, Okla.; Roscoe Thorp is building a new garage 50 by 140 feet. It will be fitted with all modern equipment and will cost about $70,000.

Muskogee, Okla.; The Fast-Buick Motor Car Co. is erecting a new building at Sixth and Court streets.

Sulphur, Okla.; Metropolitan Garage Co. is erecting a new garage.

Hobart, Okla.; Fred Trebble is building an addition.

Philadelphia, Pa.; J. T. Closby is erecting a garage to cost $8000 at Ninth and Luzerne streets. It will be 70 by 125 feet.

Philadelphia, Pa.; S. Dagostino will build a one-story garage, which will cost $1900 at 909-11 Bainbridge street.

Philadelphia, Pa.; The Hurlburt Motor Truck Co. is erecting a new building on Broad street, near Columbus avenue. This building will be used as office sales and service station for the Hurlburt truck.

Philadelphia, Pa.; James Sykes is building a new garage at 1316 Olive street.

Seattle, Wash.; Ripley & Houghton have opened a tire shop at Olive street.

Fond Du Lac, Wis.; O. Kurth and M. B. Freedman have opened a garage at Minnesota avenue and Oshkosh road. It will also be used as repair and vulcanizing shop.

NEW MOTOR BOOKS.

Laird & Lee, Inc., Chicago, announce that they have now in press the 1918-1919 edition of "The Modern Motor Car," by Harold P. Manly. It will be issued in one compact volume of 536 pages, large 12mo, with 225 illustrations from detail drawings and photographs and a 24-page alphabetical index, durably bound in flexible keratol, with round corners and colored edges. The revisions and additions bring this standard work up to the very minute, making it a complete, practical and handy reference cyclopedia on all matters connected with the care, repair and upkeep of every type of automobile, old and new.

The same firm have also in hand for immediate publication: "The Farm Tractor—Its Care and Repair," by Wallace B. Blood. This will be uniform in style and size with "The Modern Motor Car," and at the same price, $2, postpaid.

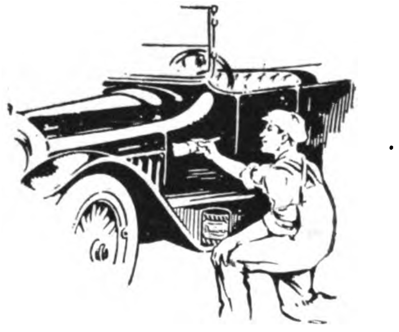
PANVAR REFINISHING LACQUER.

That many automobiles are repainted when as a matter of fact full repainting is not needed at all is the assertion of H. A. Meyercord of the Panvar Co., 618 Bulletin Building, Philadelphia, Pa.

In painting a car, especially cars in the better class, some times as many as 17 separate coats of color are applied, each coat being rubbed down to perfect smoothness before the next one is applied.

Because of this fact, while it is very easy to mar the car's finish and cause it to lose its luster and pristine newness, it is really not very easy to penetrate the finish to a point where the color is exactly destroyed.

In most cases where a car has lost its "good looks," it is simply a case of the varnish luster being destroyed or impaired, according to Meyercord, and proper treatment will go a long way toward bringing this back and making the car as sightly and eye-pleasing as it was the day it left the factory. But before the average man, unskilled in the use of the paint brush to attempt the art of refinishing the body work even with the proper equipment such as the body finisher uses on automobile work, is unheard of. It simply can't be done with any real success. And in recognition of this fact the Panvar company have brought out under the trade name of "Panvar" a special auto body finish which possesses every virtue of the regular varnish used ordinarily for work of this sort with a few exclusive attributes of its own.



Panvar Car Refinisher.

The principle trouble the lay man has in body refinishing work is to eliminate the brush marks and nothing mars the finish quite so quickly and makes the final work look amateurish as readily as brush marks. With Panvar used in place of varnish, however, there is not a chance for the car to look like a second hand machine.

The substance is made absolutely self-leveling. It eliminates all brush marks and the finish comes out smooth and wonderfully lustrous.

The second virtue of Panvar is the fact that it dries perfectly hard in eight hours. Ordinarily it is necessary to put the car in a dust proof room for a couple of days at least between each coat of paint until the final varnish has been applied. But with Panvar such is not the case. It takes its final set over night and greatly simplifies the work of refinishing. It is a transparent liquid which can be applied to any color car with equally good success.

It can also be used for refinishing tops and redressing worn leather or imitation leather upholstery.

It is put up in cans at $1.50 per quart and the makers will be glad to put a sample can in the hands of the Automobile Journal readers free if they will send 10 cents to cover the cost of postage.

SCHWEPPE & WILT MFG. CO. ENTER MACHINE TOOL FIELD.

The Schweppe & Wilt Manufacturing Co., Detroit, Mich., well known manufacturers of automobile parts, have entered the machine tool field through the purchase of the business and a large part of the equipment of the Wilt Engineering company, which was an engineering and developing company that brought out several new types of machine tools. These tools will now be manufactured by the Schweppe & Wilt Manufacturing Co., in addition to its line of standard automobile parts products.

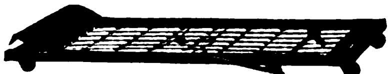
Believing that Detroit with its many industries using special machinery needed the addition of a machine tool industry, the Schweppe & Wilt Co. has greatly increased its floor space and has installed a complete equipment of the most modern machine tool building machinery, the capacity of which has been sold for months ahead. This company has grown rapidly and has become one of the substantial industries of Detroit. Its policy has been that of most successful companies, that of concentrating on the manufacture of one product, automobile rods, standardizing their construction, making them of the highest quality and producing them in quantity. It manufactures among other rods used in automobile chassis construction, reach rods, radius rods, torsion rods, tie rods and brake rods.

Last year the company designed for the government some of the essential units for the Liberty truck, and is now manufacturing these parts. In addition it is also manufacturing in large quantities several of the largest metal assemblies for aeroplanes. Over 50 per cent of its capacity is now on government work.

PURITAN BUYS SERVICE PARTS BUSINESS OF ARGO ELECTRIC CO.

The Puritan Machine Co., Lafayette boulevard and 10th street Detroit, has added another "orphan" to its list, having purchased the service repair parts business of the Argo Electric Co., formerly of Saginaw, Mich. The entire stock of Argo repair parts has been removed to Detroit.

ACCESSORIES AND EQUIPMENT



Foster Auto Repair Creeper.

The Foster Auto Repair Creeper is mounted on ball bearing, free running castors and is durably finished in baked-on black Japan. Metallic throughout it stands up under severe usage and its advantages over the wooden creeper are evident. The galvanized link spring fabric supports the body comfortably and the head rests upon a cotton filled pillow. The give of the springs allows free movement and an adjustable arm anchors the creeper firmly to the floor so that the workman can exert his full strength.

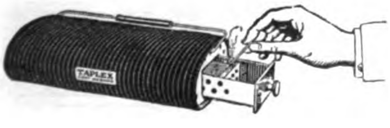
Manufactured by Foster Bros. Manufacturing Co., Utica, N. Y. Write for prices and literature.

The "Detroit" Crankshaft Tire Pump is driven directly from the front end of the engine crankshaft, being attached in exactly the same manner that the hand crank is connected. It is locked in position and held from turning by a clamp or screw and is connected to the end of the engine crankshaft by a short ball joint shaft or coupling, which drives it. Each downward stroke of the piston draws in clean, cool air, and each upward stroke forces it through the tube into the tire. The only attention necessary is a spoonful of hard graphite grease about once a season. It is made as carefully as a little engine. Cylinders, crankshaft and pistons are ground to close limit. Regular engine type high compression piston rings are used and stand engine type valves are used. The outfit includes a 14 foot hose and quick detachable connection for pocket gauge.

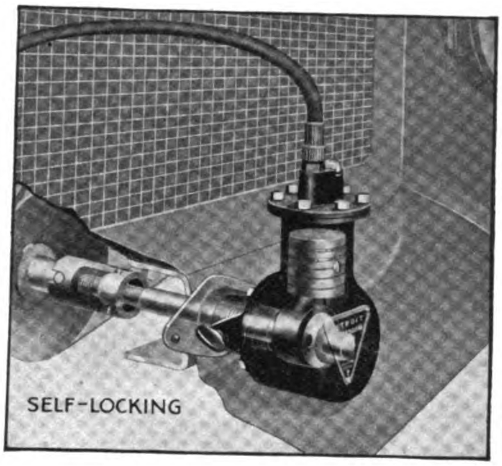
Manufactured by the Detroit Accessories Corporation, Gratiot and Fisher Aves., Detroit, Mich. Price $12. Write for size adapted to your car.

The Holtzer-Cabot Gasoline Strainer is made of an aluminum casting with a bronze wire screen of 120 mesh with over six square inches of surface. The gasoline enters through the bottom of the strainer and passes up through the screen, thus making it possible to remove all dirt and water that falls to the bottom of the strainer, through the screw plug at the bottom. The wire screen cap can be taken out by unscrewing the top wing nuts.

Manufactured by the Holtzer-Cabot Electric Co., Roxbury, Mass. Write for prices and literature.



Taplex Foot Warmer.



"Detroit" Crankshaft Tire Pump.

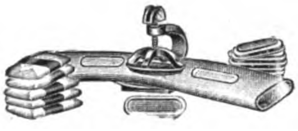
Holtzer-Cabot Gasoline Strainer.

Universal Battery Service is a perfect, complete service for repairs on practically any battery. This service solves one of the biggest problems, as it guarantees prompt delivery on all parts needed for replacement and repairs, such as plates, terminals, connectors, separators, etc.

The Universal Battery Co., 3420 S. La Salle St., Chicago, Ill. Write for literature.

The Autophone being a telephone and not a microphone, differs vastly from other instruments used for similar purposes. It will catch every tone variation and reproduces the natural voice vastly intensified, at the same time excluding other noises. It acts the same whether the car is open or closed. The entire equipment consists of a tiny receiver, a small sized transmitter and a few feet of wire. It is readily connected with the other electrical equipment of the car, or with any six or 12-volt storage battery.

Marketed by the Klaxon Co., Motor Equipment Division, 3066 W. Grand Blvd., Detroit, Mich. Write for prices and literature.



Magic Vulcanizer.

The Magic Vulcanizer is an ingenious little device that vulcanizes patches on inner tubes in five minutes time, disregarding all weather conditions. The patch is simple and effective. A lighted match applied to the chemically treated cartridge in the top of the tin cap provides the heat units necessary to penetrate the patch and in a few minutes the tube is perfectly vulcanized and ready for instant use. There is no flame, no danger of fire and the strongest wind cannot blow it out. The complete outfit, including clamp and 12 vulcanizing patches take up small space in the tool box.

Manufactured by Magic Auto Devices Co., Inc., Lynbrook, N. Y. Price, $2. Extra patches, the dozen, $1.

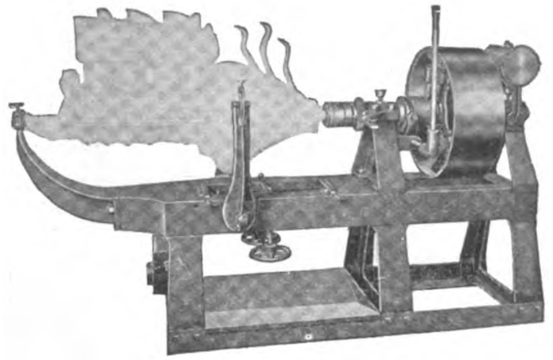
The Taplex Foot Warmer is for use in the automobile, camp, porch and for all other outdoor uses. On the coldest days it gives one that full measure of comfort and protection which makes the automobile ride a pleasure. It is lighted with a match and the fuel burns without flame or smoke, thus making it absolutely safe. The case is made of indestructible steel with nickel plated ends and a double asbestos lining. The whole is covered with a rich velvet plush in blue taupe. The oufit comes complete with 12 bars of fuel, each of which will last eight hours, keeping the heat hot for that length of time.

Manufactured by the Taplex Corporation, 47 West 34th St., New York City, N. Y. Weight 5 pounds. No. 14, $5; No. 20, $7.50. Extra fuel, 12 bricks to a box, $1.

The Woodworth Clear Light Lens for automobile head lights is a prism lens especially designed to prevent glare without absorbing light, but by directing its rays where they are most required. The upper half of the lens is so designed that it throws the light to the sides of the road and the lower half is designed to throw the rays down on the road itself. The lens is made in all of the commonly used sizes.

Dealers or jobbers can obtain a very favorable proposition on these lenses by writing direct to Woodworth Manufacturing Corporation of Niagara Falls, N. Y.

Woodworth Clear Light Lens.



Nasett Combination Burning-In and Work Out Machine.

The Nasett Combination Burning-In and Work Out Machine will permit the average mechanic with a limited experience to burn-in all the main bearing and connecting rod bearings of a Ford engine in one hour's time and have a better job than could otherwise be obtained in several hours time. The machine is designed to be operated by a minimum amount of power, as most shops are equipped with small motors. It is amply provided with adjustments, provision being made for raising and lowering the cylinder block to allow proper alignment by means of positive and quick adjusting blocks, which slide in accurately milled grooves in the main bed plate. An expanding clutch is used with hard wood friction blocks controlled with turn buckles. Bronze shoes are used in the clutch throw out collars.

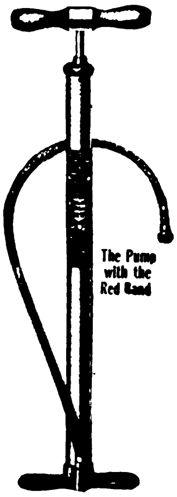
To test the tightness of the bearings during the burning in operation the knurled handle clutch lever is removed from its socket and inserted in the socket provided on the clutch arm, which enables the operator to turn the crankshaft by hand. It is not necessary to remove the cylinder block from the machine to tighten bearings or inspect same, as this may be done while the machine is running. Openings are provided in the main bed plate through which the valves are free to operate and permit the easy replacement of pistons. In fact it is not necessary to remove the block from the machine until it is ready to be bolted to the crank case. The heavy flywheel when under motion helps to maintain a more constant speed with a minimum amount of power.

To convert the machine into a work-out machine it is simply necessary to raise the two side arms, lock them into a vertical position and place the assembled engine into position. Convenient adjustments are properly provided for to align same. It is very essential to work the engine for a short time after it has been overhauled and this test will enable the mechanic to discover such defects as piston slaps, noisy timing gears and oil leaks. The machine is provided with brackets to attach the regular Ford coil box. A gasoline tank is equipped to connect the carburetor. Water connections for engine and oil drip pan are furnished.

Manufactured by H. H. Nasett, Eldora, Ia. Price complete, $250.

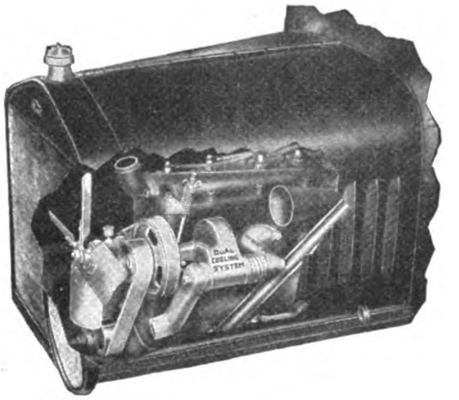
The K-D Tail Lamp Assembly assures one of an efficient signal light whether the car is running or not. It has two bulbs, a high voltage 18-24 volt, two candle power, wired to the magneto and operated in conjunction with the headlight switch, thus insuring light when the car is running. A low voltage three-volt 42 ampere lamp wired to two dry cells and operated by a separated switch furnishes light when the engine is idle.

Manufactured by the K-D Lamp Co., Cincinnati, O. Price, $2.50.



Sunderland Pump.

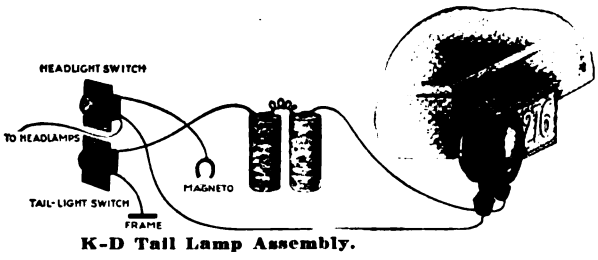
The Gordon Sectional Overlap Lazyback Seat Cover.



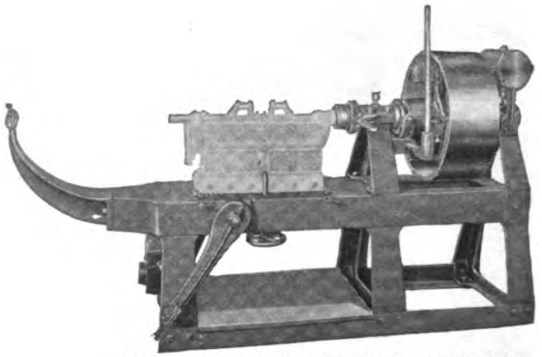
Dual Cooling System for Ford Cars.

The Sunderland Pump is long, smooth working and slender. The single cylinder model, see illustration, has a 24-inch stroke, enabling a frail woman to put 90 pounds pressure into a tire. It is guaranteed for five years.

Manufactured by the Sunderland Manufacturing Co., 600 W. 22nd St., Chicago, Ill. Five models—No. 10 at $2.25 is a new pump with floating piston. No. 100 at $1.40 is a single cylinder pump. No. 2 for fast action a two-cylinder pump with 17-inch stroke is $2.35. No. 3, three-cylinder, has 18-inch stroke, $4.50.



K-D Tail Lamp Assembly.



The Municipal Traffic Post carries four faces, which may be used for civic advertising. The posts are being placed in conjunction with chambers of commerce, patriotic societies, associate charities or other organizations, or directly in conjunction with the municipality itself. The post weighs approximately 600 pounds. It is 29 inches square at the base and is seven feet high. It is constructed of first class materials with fine workmanship throughout, and costs installed complete $115. The contracts under which the Municipal Appliance Co. is installing these posts provide that they shall be lighted, repaired, cleaned and generally maintained by the company for a period of years without expense to the taxpayers of the community. This offer, according to the company, is being widely taken advantage of by city councils throughout the country, who feel the need of such a regulatory device for traffic, but have hesitated on account of the expense.

Manufactured by the Municipal Appliance Co., Madison, Wis. Write for literature.

The Gordon Sectional Overlap Lazyback Seat Cover makes a good fit under all conditions. The section to cover the back of the seat overlaps on each of the arm rest sections and is greater or less as the case may be. A misfit is impossible the makers claim, the lacing at the bottom preventing wrinkles, as should one appear the lacing is again adjusted to the proper tension. The overlap relieves all strain on fabric and fastening because of its flexibility permitting each section of the cover to conform to the movements of the upholstery without strain.

Manufactured by the J. P. Gordon Co., Columbus, O. Write for prices, samples and literature.

Dual Cooling System for Ford Cars consists of a centrifugal force circulating pump with a capacity that will not allow the water to remain in the cylinder block long enough to come to the boiling point, also a large ball bearing fan that supplies enough air to carry away the heat from the radiator. The pump swings on the water line, which gives a proper adjustment to both the fan and the pump belt at all times. There being separate adjustments for each, which are automatically taken up by the spring belt tighteners, and when further belt adjustments are necessary this can be done without the use of a wrench.

Manufactured by the Dual Manufacturing Co., 1202 Hennepin Ave., Minneapolis, Minn. Write for prices and literature.

The Municipal Traffic Post.

The Clean-All Windshield Cleaner by its extreme neatness adds to the appearance of any automobile. This cleaner cannot rust or rattle. The windshield can be turned down with the cleaner attached and it is so designed that it cannot break the glass. It is always out of the driver's way, but never out of his reach and is constructed of the best material obtainable for hard practical use.

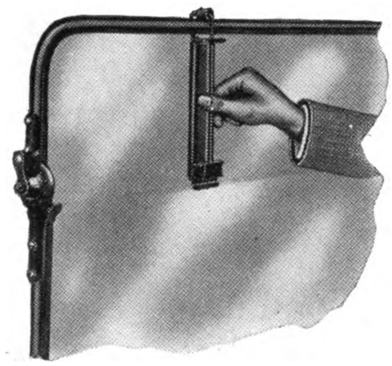
Manufactured by the Clean-All Windshield Corporation, 257 Washington St., Buffalo, N. Y. Price, $1.50.

Ekern's Portable Work Bench and Engine Stand is especially designed for use in Ford repair shops, although there are various uses to which it can be put in general repair shops. The stand is mounted on three four-inch diameter wheels. The rear castor wheel is constructed so that by pulling a plunger pin this castor will swing up off the floor and the stand will rest solidly upon its legs. It has two large trays 22x24 inches, where the workman can place his tools or engine parts. A Ford engine assembly can be attached to the stand by the two cap screws which hold the water inlet connection on the engine. The part attached to the engine will revolve in the clamp on the stand, adjusting the engine to the position most convenient to be worked upon. The bench is also equipped with a vise, which has a three-inch jaw with a four-inch opening. This vise will handle any work required in overhauling the Ford engine or other work of a similar nature.

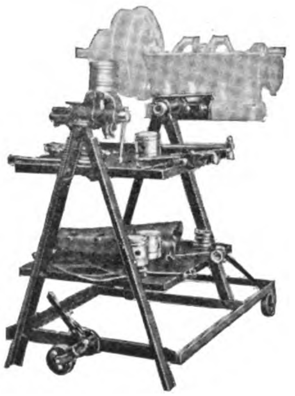
Manufactured by the Ekern Bros. Manufacturing Co., Flandreau, S. D., and distributed by H. G. Paro, 1410-14 S. Michigan Blvd., Chicago, Ill. Write for prices and literature.

The Presto Bulb Testor is designed to test all sizes of automobile bulbs that have an Ediswan base and the dealer when selling a bulb can test it before the purchaser's eyes, thus proving that the bulb is perfect and also that it is of the correct size for installation on that particular car. The switch lever at the front has contact points for 1½, 3, 6, 9 and 12 volt bulbs. It can be attached to any ordinary 110 volt socket and is equipped with seven feet of lamp cord. The device is enclosed in a neat metal case of black enamel with trimmings of nickel plate.

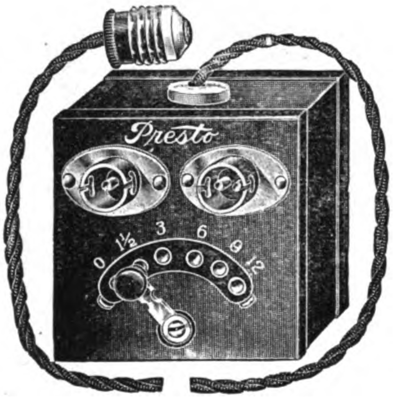
Manufactured by the Metal Specialties Manufacturing Co., 338-52 N. Kedzie St., Chicago, Ill. Write for prices and literature.



The Clean-All Windshield Cleaner.



Ekern's Portable Work Bench and Engine Stand.



The Presto Bulb Tester.

The Nazett Connecting Rod Jig is an aligning fixture for testing the alignment of new and used connecting rods for Ford engines. It is conservatively estimated that 50 per cent. of new rods are not true, and 97 per cent. of the rods in engines which have been overhauled are out of alignment. This condition invariably causing a knock which many a mechanic has looked for but could not find. The pins in the tool are made of high carbon steel, double heat treated, hardened and ground. The large pin is accurately fitted into steel bushings, which are also hardened and ground.

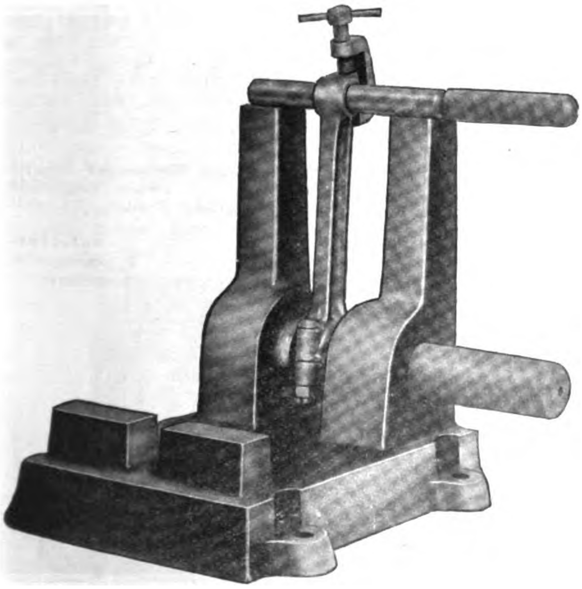
Manufactured by H. H. Nazett, Eldora, Ia. Price, $30.

The Guarantee Visible Pump consists of two separate and distinct units, a measuring unit designed for use outside the garage or filling station and a pumping unit consisting of a rotary suction pump, driven by an electric motor through a silent chain. The whole pumping unit being mounted on a cast iron base suitable for location in any convenient place. The container at the top of the pedestal is of glass protected by a guard of expanded metal and marked to measure from one to five gallons. Opening into this container and extending down through the pedestal is a one-inch stand pipe, which connects with the gasoline supply line. This stand pipe can be raised or lowered and set in a measuring stop so as to adjust the height of the open end inside the container to correspond with the gallon marks on the glass. The measuring is automatic, thus eliminating the human element and insuring absolute accuracy. The pipe to the right of the container is a conduit which carries the wiring from both the motor and the light globe. The pipe to the left of the container is a vacuum line extending from the top of the container down through the pedestal and connecting to the exhaust end of the rotary pump. The small steel ball when raised closes the switch operating the motor and also operates the valve controlling the vacuum. The makers claim a guarantee of one year against defects and workmanship.

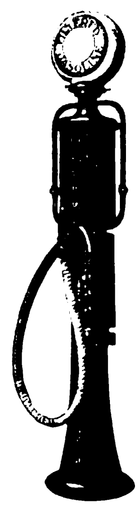
Manufactured by the Guarantee Liquid Measure Co., Pittsburgh, Pa. Write for prices and literature.

The Buffum Buick Valve Remover is quick, sure and safe, obviating the danger of bending washers, valve stems and valve springs or breaking the valve cage. It lifts the valve straight up with a strong, steady pull and fits Buick engines of all models since 1912. It is light and compact and occupies no more space than an ordinary wrench, being easily carried in the tool box.

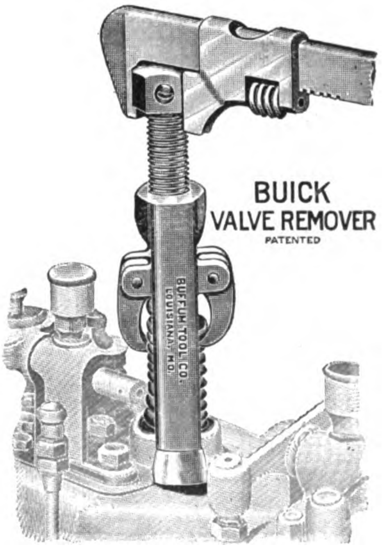
Manufactured by the Buffum Tool Co., Louisiana, Mo. Price, $2.



Nazett Connecting Rod Jig.



Guarantee Visible Pump.



Buffum Buick Valve Remover.

Norwesco "Twelve-Twenty" does away with all guess work in connection with radiator protection. No longer need the motorist wonder whether his non-freeze is strong enough every time a cold snap comes. He knows his radiator is absolutely safe down to 20 degrees below zero. Any one who has put in a messy half hour measuring and compounding a non-freeze mixture will appreciate "Twelve-Twenty."

The solution is made with a specific gravity of 1220, hence its name. If evaporation or leakage causes changes in the solution the hydrometer discloses that fact and a weak solution may then be restored to standard strength by the addition of more of this liquid. If the test shows undue strength, dilution with water corrects the defects. Thus the motorist may test his non-freeze solution as he does his tires or battery and the close check he can keep on the solution should go a long way towards reducing last winter's record of frozen radiators.

Manufactured by the Northwestern Chemical Co., Marietta, O. "Twelve-Twenty" is sold in three sized containers. One gallon cans, $1.25; three gallon cans, $1.15 per gallon and five gallon cans, $1 per gallon.

New Era Indestructible Sparking Contact Points are successfully used on all ignition systems except Bosch and replace worn vibrator points, or points in magnetos. They are made from an alloy of materials which the makers claim are harder than platinum. These points, the makers say, are indestructible and they back this claim with a broad guarantee.

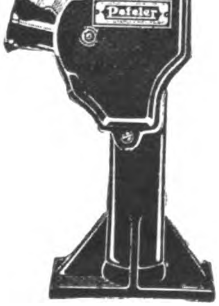
Manufactured by the New Era Spring and Specialty Co., 1177 Hamilton Ave., Grand Rapids, Mich. Prices from 60 cents to $1, according to sizes.

The Moto-Meter is the danger signal of motor trouble. Every defect in a motor, such as a leaky piston ring, warped valves or empty oil reservoir, is instantly reflected in the temperature of the water and the Moto-Meter immediately registers "danger." The car operator cannot fail to see the signal, as it is directly in his line of vision and no one will intentionally disregard signs of a defective engine. The new model is designed especially for Ford cars.

Manufactured by the Moto-Meter Co., Long Island, N. Y. Standard size, $10; the Overland, $10; the Junior, $5, and the Midget, $2.50; Ford size, $2.50.

The Acme Automobile Jack may be operated from the end of the longest car without soiling the clothes, the outstanding features being ball thrust bearings and a large base area. All working parts are enclosed in a dirt and grit proof case and they run in heavy grease. The lift screw is ⅞ of an inch in diameter.

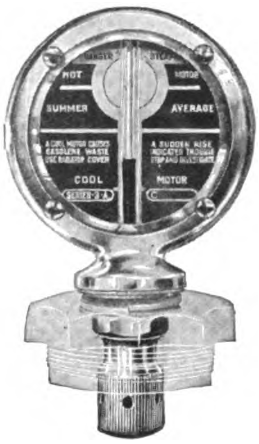
Manufactured by I. S. Spencer's Sons, Inc., Guilford, Conn. Price $6.50.



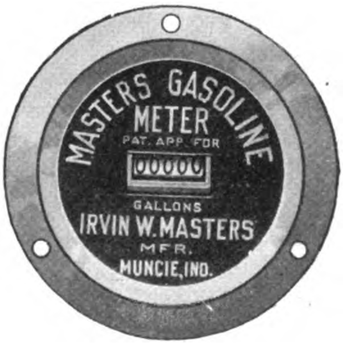
Peteler Jack.

NORWESCO
TWELVE TWENTY
PREVENTS FROZEN RADIATORS

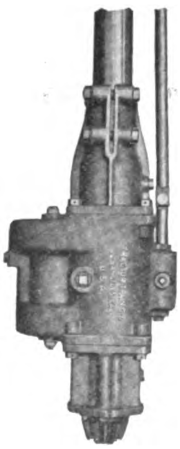
Norwesco "Twelve-Twenty."



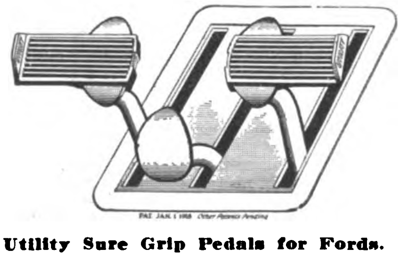
The Moto-Meter.



The Masters Gasoline Meter.



The Moore Transmission.



Utility Sure Grip Pedals for Fords.

Utility Sure Grip Pedals for Fords are made of pressed steel finished in black enamel and are equipped with heavy pads of rubber edged with metal. They are easily and instantly attached without the use of drilling tools, the tightening of a nut being all that is necessary to hold them securely in place.

Manufactured by the Hill Pump Valve Co., Archer Ave. and Canal Sts., Chicago, Ill. Price $1 per pair.

The Moore Transmission is merely a matter of increased leverage; as, for instance, it is easier for a man to lift a given weight with a lever 20 feet long than it is with a lever 10 feet in length. Due to this steady flow of power the strain on the engine mechanism is very much lessened because the impulse of the engine is blended thoroughly before the power is transmitted to the back wheel.

As all parts of the transmission are properly designed and machined there is no difficulty in installing. Roller bearings are used throughout and are easily obtainable for replacement purposes and are the bearings which have been found most satisfactory for Fords. This transmission enables the driver to adapt his car to any kind of road conditions from paved streets to mud holes, deep sand and hills.

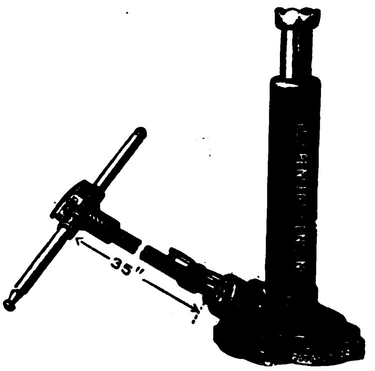
Manufactured by the Tractor Train Co., 1346 Wall St., Los Angeles, Cal. Write for prices and literature.

The Masters Gasoline Meter is a round device 2½ inches in diameter with a row of figures which indicate the gasoline consumption in gallons and tenths. Reading the instrument is like reading an odometer. This meter can be used on any car equipped with a vacuum feed tank and the operation is such that each cycle of operation draws in and discharges a certain amount of fuel. It is connected through a small copper tube to the vacuum tank. Every time the tank is filled and emptied an impulse is sent to the meter and these impulses are deducted into terms of gallons and tenths and indicated on the face of the meter. Floats, cords, pulleys and such devices are not used in this instrument and it is one of the most practical and simple recording devices yet invented.

Manufactured by Irvin W. Masters, Muncie, Ind. Price $8.

The Universal Vise Attachment is based upon an entirely new mechanical principle. It instantly converts an ordinary square-jawed vise into a tool of a thousand purposes, through the independent action of each "tooth" or "gripper" of its jaw in clasping the form or shape upon which work is to be done. This vise is very efficient for holding irregular shapes. It is made of cold rolled steel, tempered and electrically welded and will reduce the working time by half where irregular shapes are involved.

Manufactured by the Universal Equalizer Co., Cincinnati, O. Price four-inch set, $8; five-inch set, $9.



Acme Automobile Jack.

The Comer Auto-Stop Signal, an invention by Mr. G. Comer, a conductor on the Illinois Central, understanding the efficiency and positive dependency of the semaphore signal of railroad block system, conceived the idea that such a device properly operated and installed upon a motor car would solve the "safety first" problem and especially eliminate all possibility of not signaling if operated automatically. The device is attached to the tail light post or license bracket and a coil cable with strand pull cable passing through a lever attached by six screws to the floor board of the tonneau under the car, from the lever bracket a heavy strand cable is bolted to the foot brake rod by means of a lock bolt. The slightest pressure on the service foot brake takes up the slack and before the brake bands tighten up to the point of slowing the car down the red semaphore arm raises to a horizontal position, thereby immediately and automatically giving a signal to the man behind. Provision for night operation is provided by an electrical bulb (two candle power) installed within the housing of the semaphore arm and by means of a contact screw inside the axle of the semaphore when coming to a horizontal position automatically makes contact and lights, signaling the word "Stop" brilliantly illuminated to the man behind and which can be seen and read for 300 feet.

Manufactured by the Wonder Sales Co., 616 Hippodrome Bldg., Cleveland, O. Price, $12.50.

The Petry Universal Pedal is a pedal designed for muffler cut outs, accelerators, exhaust whistles, heater valves, etc. This device can be used either to pull or push and is made of high grade steel, gun barrel finish.

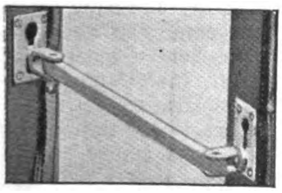
Manufactured by N. A. Petry Co., Inc., 1307 Race St., Philadelphia, Pa. Price, 75 cents.

The Bulldog Luggage Carrier is the most efficient and satisfactory means of taking care of the luggage while motoring. It will hold grips or suit cases of any size firmly to the running board of the car, doing away with the crowding of foot room in the tonneau. When not in use the carrier can be unfastened and carried in a pocket of the car. It is made of the most substantial material throughout and will wear for many seasons. The makers guarantee satisfaction in every case or money refunded.

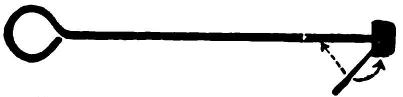
Manufactured by the Bulldog Luggage Guard Co., 37 Elm St., Nashua, N. H.

The Hurricane Hook is a nickeled rod 5/16 of an inch and about six inches long. One end fastens to the door and the other end to the body holding the door open enough to let in the air, but not far enough to extend beyond the running board. Fitting flush there are no projections to tear the clothing nor rattle. When it is not in use it can be left hanging down or lifted off and stored away in the car pocket. It is adjustable to all makes of cars, is well made and mechanically correct.

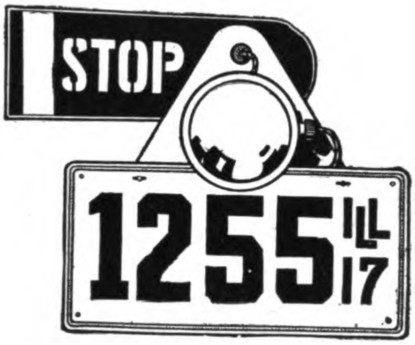
Manufactured by Joseph N. Smith & Co., Detroit, Mich. Price 60 cents.



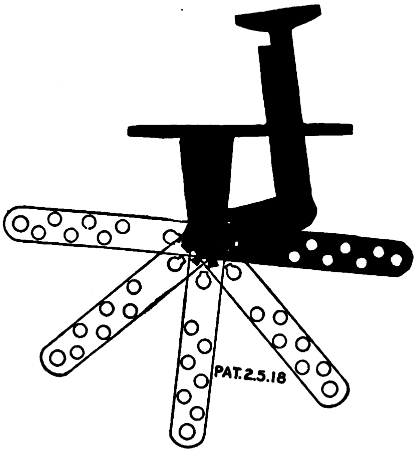
Woods Everloc.



Fawsco Combination Cleaner.

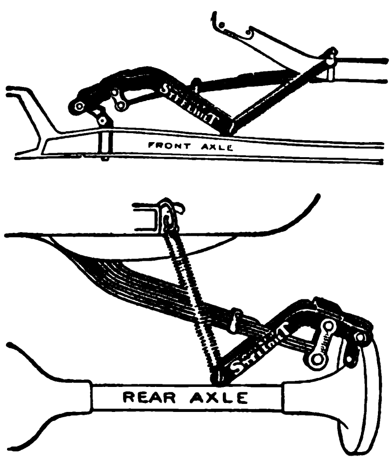


The Comer Auto-Stop Signal.



The Petry Universal Pedal.

The Bulldog Luggage Carrier.



Walker Steelbilt Shock Absorbers.

The Fawsco Combination Wrench is a combination gasoline gauge, oil cock wrench and cleaner, and the claim is made that it will not only measure the gasoline in the tank, but provide the only sure means of learning whether there is oil in the crank case, as the pin will prove if the oil cock is stopped up or the oil exhausted. It is made of nickel plated, coppered, Bessemer steel rod, with a very high class finish. They are put up in complete packages for the convenience of the trade and dealers are furnished with a very handsome counter display card, upon which is mounted one of the tools, which helps considerably in their sale.

Manufactured by J. H. Faw, Inc., 37 Warren St., New York City. Retail price, 45 cents.

The Walker Steelbilt Shock Absorbers for Fords smooth out rough going—soak up the shocks and cradle the Ford in a big easy car sway, the makers claim. They are built entirely of steel with the springs extra long, oil tempered and of the utmost durability. The spring bolts are turned from cold rolled steel and hardened—equipped with oilers. The free unhampered action given to both the coils and springs require no sliding parts and they are thoroughly safe and as strong as steel can be in every section.

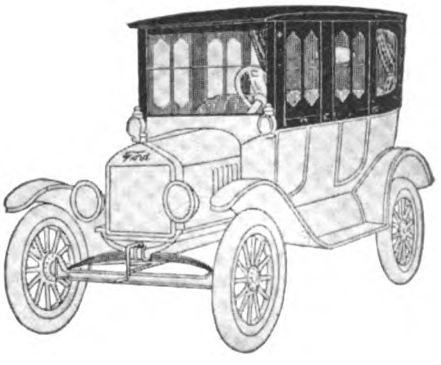
Manufactured by the Walker Manufacturing Co., 31 Hamilton St., Racine, Wis. Price, $7.50 per pair.

The Cozy Top for Ford cars embodies the features of the "Springfield" permanent top construction. It affords all the comforts and protection provided by the coupe, sedan and limousine types of body, and it also greatly improves the appearance of the car.

The strong feature of the Cozy Top is the Hunter Automatic Curtain, which is the most ingenious and practical device invented for this purpose. It is always ready and yet never in the way. It is out of sight under the roof when one wants the car open and in one second the car can be closed without leaving the seat.

This top is carefully crated and shipped knocked down, in order to secure the lowest possible freight rates. The Roadster Top is shipped in five pieces, the Touring Top in seven pieces. It requires no special tools to put it on the car—just a hammer, a wrench, a screw driver and about one hour's time. The top is sold with a guarantee from the manufacturers of 10 days free trial and if at the end of that time it is not satisfactory it may be returned and the money, plus freight charges will be refunded.

Manufactured by Founts & Hunter Co., Terre Haute, Ind. Write for prices and descriptive literature.



The Cozy Top.

BEARINGS SERVICE TAKES ON RIMS.

R. S. Lane, president of the Bearings Service Co., has announced that his concern has made all preparations to offer to the motoring public a complete service on rims. This announcement further states that this new rim service will be added to the work at each of the 22 service branches of the Bearings Service Co.

President R. S. Lane of the Bearings Service Company.

"For some time we have realized the need for a nationalized service on rims," said Mr. Lane, "and our organization for service on Timken, Hyatt and New Departure bearings is working so well and has created such a splendid impression on the public that we feel capable of handling the rim proposition properly.

"We have made plans to handle all replacement work on Baker, Detroit, Perlman and all similar types of rims. This includes practically all cars made, at least such a large majority that our organization will find a very heavy task on its hands.

"The rim service will be almost identical with that now being given on bearings. We will have our men thoroughly trained on rim equipment, and maintain a complete stock of the various sizes and styles of rims at each branch. The owners, garage men and dealers will be able to get the rims they need without delay or inconvenience. Although there has never been any attempt made to nationalize rim service, yet we believe that it can be done. In addition to our 22 branches we also have 500 distributors handling our bearing service, all of which will be utilized in the rim service."

MARLIN-ROCKWELL BUYS PLANT OF BRAEBURN STEEL CO.

To insure a continuity of supply of the high grade alloy steels used in their various products, the Marlin-Rockwell Corporation has recently acquired the plant of the Braeburn Steel Co. of Braeburn, Pa.

Plans have been made for extensive development of this property by the additional equipment of a six-ton electric furnace, thus making available two furnaces of this capacity.

The increasing needs of the Standard Roller Bearing Co. of Philadelphia and the enormous requirements of the Marlin arms factory at New Haven, Conn. (both of which are now owned by the Marlin-Rockwell Corporation), have resulted in bringing this source of steel supply within its organization. With their other sources of supply this provides additional assurance of an adequate quantity of these high grade materials.

The Braeburn company has long been known as specializing on high speed tool steels and electric steels, which will continue to be manufactured under the new ownership.

WALDEN-WORCESTER INC. OPENS BRANCH OFFICE IN CHICAGO.

W. F. Opdyke, Manager of Chicago Branch of Walden-Worcester, Inc.

The Walden-Worcester, Inc., the well known wrench manufacturers of Worcester, Mass., have opened a branch office in Chicago at 452 Monadnock building, Jackson boulevard, opposite the postoffice.

L. H. Craig, Formerly with the Crescent Tool Co.

The office will be in charge of Messrs. Craig and Opdyke, the former well known to all the company's western customers and the latter will be remembered through his former connection with the Crescent Tool Co.

NEW AUTOMOBILE SIGNAL MEETS WITH INSTANT SUCCESS.

Jack Stiles, President of Liberty Accessories Corporation, Makers of Liberty Siren.

The Liberty Siren, recently introduced by the Liberty Accessories Corporation of St. Louis, Mo., has met with the most popular demand probably ever attained by an automobile signal, considering the time it has been on the market. In St. Louis over 5000 of the signals were sold in 10 days. Its popularity is based on an exceptionally distinctive and pleasing tone, covering two octaves and giving the loud and soft tone combinations. The Liberty Siren is heavily nickeled and sells for $3.50.

Jack Stiles, a prominent figure in equipment and golf circles, who has been identified in the past with various manufacturers in the motor field, is now backing his own success and is president of the Liberty Accessories Corporation, which is manufacturing and marketing the Liberty Siren.

J. A. DRAKE OF CAMPBELL-EWALD CO. GOES TO CAMP CUSTER.

John A. Drake of the Campbell-Ewald Co., Detroit, and one of the most popular men in the Detroit automotive advertising circles, is now at Camp Custer. Before leaving for military duty he was given a rousing testimonial at a meeting of the employees of the Detroit office, when Henry T. Ewald presented him with a handsome wrist watch.

Mr. Drake held a position of responsibility with the Campbell-Ewald Co., which is the largest in Detroit and one of the largest in the United States. Among the firms whose advertising Mr. Drake helped direct were the Covert Gear Co., the Bearings Service Co., the United Motors Service, Inc., and the Harrison Radiator Corporation.

He had been a member of the Machine Company, 550th Infantry, M. S. T., for the past year.

The Effect of Soldiers' and Sailor' Civil Rights Act on Wholesale and Retail Business

By ELTON J. BUCKLEY.

There appears to be but little accurate information among business men as to the Soldiers' and Sailors' Civil Rights Act, which is the law passed by Congress to prevent the bringing of suits and actions against men in the army and navy, in any way which would make their absence a detriment to them. This is already affecting large numbers of business houses and with the millions more men certain to be under arms in the next few months, this law is destined to be of great importance. That it is really important already may be seen from the fact that one of my clients, a wholesaler, encountered it five times in one week in trying to collect delinquent accounts.

This law is in force for the period of the war, and to quote from its own terms, it is for this purpose: "Protection is hereby extended to persons in military service of the United States, in order to prevent prejudice or injury to their civil rights during their term of service, and to enable them to devote their entire energy to the military needs of the nation, and to this end the following provisions are made for the temporary suspension of legal proceedings and transaction which may prejudice the civil rights of persons in such service during the continuance of the present war."

In a nutshell, the act puts creditors where they cannot take snap judgment against a man who owes them an account, if that man is in the army or navy. This is so in the case of any business transaction, including transactions where fixtures and such things are bought on installments. The justice of the law is not debatable, but creditors are going to find it a good deal of a nuisance, no doubt.

This law applies to every court in the United States, even justices of the peace, aldermen or magistrates' courts. Its provisions, so far as they are germane to this article, I briefly summarize as follows:

If you sue a defendant to recover an account, or for any other purpose, and he doesn't appear, you could ordinarily get judgment by default. Now, before you can do that you must file an affidavit either that he is not in the military service, or that you don't know whether he is or not. If he is in the military service you can't get judgment without the court's permission, and permission may not be granted. It will not be granted in any event until the court has first appointed an attorney to represent the defendant and has, if thought necessary, made you put up a bond to reimburse the absent defendant from any damages he may suffer from your judgment, if you are granted leave to take judgment and the judgment is set aside after he comes home.

If you are in need of legal advice, if you want first-class professional service at no cost to yourself, address a letter to Mr. Buckley, in care of the Legal Department of the Accessory and Garage Journal, detailing the issues as clearly as possible. By special arrangement with this journal he will give immediate answer, either on this page for the benefit of other subscribers who may have the same trouble, or direct by mail as the inquirer specifies. Sign full name for the purpose of correspondence, not for publication. This service is free to subscribers to this magazine.

If it wasn't for this provision a creditor could have started his suit against a man in the army or navy, served the paper at the debtor's home and in time gotten judgment by default and levied on anything he could find belonging to him.

If any judgment is rendered against any man in military service, and it appears that he was prevented or hindered in making his defense by his absence on military service, the judgment can be opened any time up to 90 days after he leaves the service, and he will then be allowed to make his defense, provided he can show he has one.

This means that no judgment will be safe against anybody in the military service, up to a date 90 days after he leaves until he has come into court and defended at the time.

The court can stop proceedings against a person in military service, at any stage, provided it appears that his being engaged in military draft is hampering him in any way. This is left in the absolute discretion of the court, and is a most radical provision.

Suppose you have a running contract of some sort with a customer who is called in military service, and ordinarily, if he broke it, you could collect damages, either damages specified in the contract, or damages you could show you had suffered. If the court stops your proceeding, you cannot collect any damages from then on, even if the proceeding is suspended for five years. Also, if somebody who has entered into such a contract is compelled to default on it because he was called into service, you cannot collect damages from him by reason of such default, if the court thinks collecting damages is unfair, as it probably will.

If you have issued an attachment or have garnisheed the property or wages of a man in the service, the court can set the attachment aside. If you can show the court that being in the service has no effect on the defendant's ability to pay, you may induce the court not to set the attachment aside, but in the average case this will not be easy.

All the stays and stops referred to above can be made for the full period of the war and three months afterward, the latter period being provided to allow the debtor to get on his feet again.

This law contains some special provisions regarding the installment contracts by which so many fixtures and business appliances are sold nowadays. It is provided that no concern which has sold something on installments, or on the usual lease or property note, and has collected a deposit or installment on it can—if the buyer defaults on his payments—step in and either seize it or take legal proceedings against the buyer. Any seller who violates this provision can be fined $1000 or sent to prison. In addition the court can compel him to refund all installments which have been paid, or it may stay the whole case. Of course if it can be shown that the military service of the buyer is not interfering with the case in any way, the court may refuse to interfere, but I say again the courts are going to take the position that they must be very clearly shown before they deny persons in military service the protection given them by this act.

(Copyright, June, 1918, by Elton J. Buckley.)

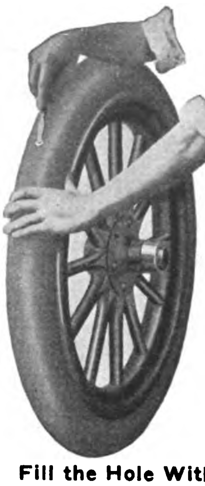
"Stitch in Time" Saves Tires

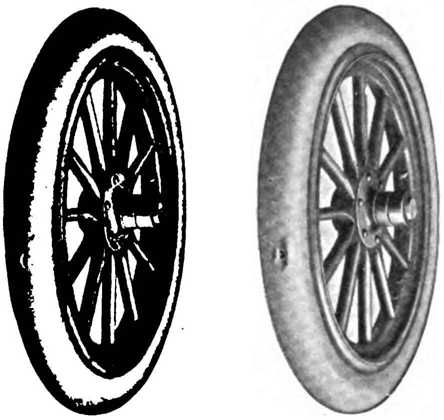
Blowouts Can Be Practically Eliminated By Sealing Cuts and Pockets When Small

The untimely end of nine tires out of 10 can be traced to the point where a brief application of the "stitch in time" principle would have added thousands of miles to their lives.

A tire manufacturer recently featured the results of tests of nine tires which were run under similar conditions until they failed. Great stress was laid upon the fact that the average life of these nine tires was 6500 miles.

However, two of these tires averaged 9500 miles each. The remaining seven averaged only a little more than 5000 miles. Every one of the seven blew out within 1200 miles after being cut superficially by sharp stones or glass, so that the fabric was exposed to the action of sand and water. The first two tires ran until they were actually worn out. The other seven would have given double mileage if the small, apparently insignificant cuts had been sealed in time.


Fill the Hole With Raw Rubber.

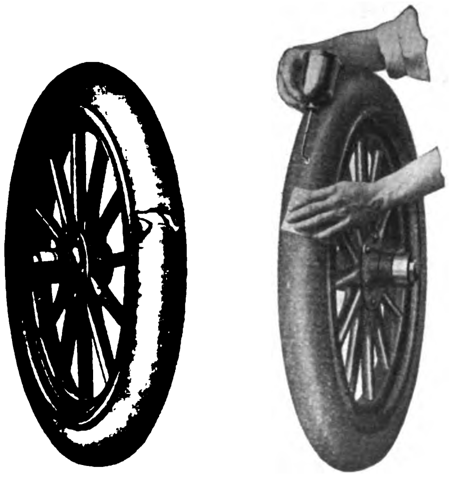

Left—Tire with Small Tread Cut. Too Small to Take to the Repair Shop, but Large Enough to Admit Dirt, Water, Oil, Etc.

Right—Same Tire After Running a Few Hundred Miles. A Sand Pocket Has Formed and Is Growing Rapidly. The Fabric Which Constitutes the Strength of the Tire Is Beginning to Rot.

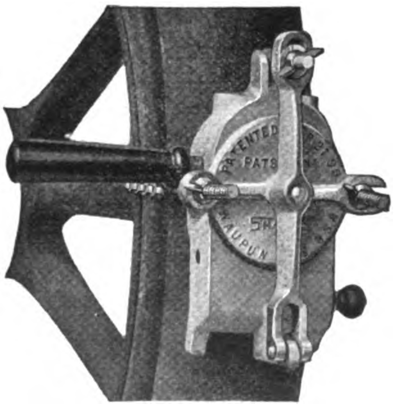
Little casing cuts neglected are the cause of more premature tire failure than any other single item. These small holes expose the fabric. Sand blisters form. Water and dirt get in and rot the fabric. Then comes the blow out, a big repair bill and a casing and tube ruined.

Blow outs can practically be eliminated by sealing casing cuts and sand pockets while they are small. The portable vulcanizer does this in a few minutes while the tire is inflated on the wheel. There is no danger to tire or tube and the repair is permanent. Many thousands of automobile owners are in these days of conservation giving their tires a careful inspection every week or two and vulcanizing each little cut that exposes the fabric, with the result that they are now getting double or treble the usual mileage, to say nothing of eliminating most of the trouble they used to have. Of course tubes are repaired, too, with the same vulcanizer and thereby auto owners comply with the request of the war economy board that automobile owners assist in releasing garage mechanics by taking care of as many of their own minor repairs as possible.

Vulcanizing has been accepted as the only method of making permanent repairs to tubes and casings. The vulcanizing apparatus has been simplified to the point where the average motorist can use it. To motorists who are considering the purchase of tire repair kits we would suggest that it is well to keep in mind the fact that casings cost several times as much as tubes, and that when purchasing the vulcanizer that will eventually be a part of their equipment they assure themselves that it will repair castings as well as tubes.


Left—A Few Hundred Miles More and There Is a Blowout. Thirty Dollar Casing and Four Dollar Tube Gone.

Right—First Stage in a Simple Repair That Would Have Saved the Tire. Clean the Hole with Gasoline and Sandpaper.



Apply the Vul-Kit for About 20 Minutes with the Tire Fully Inflated on the Wheel. It Gives Just the Right Amount of Heat and Then Quits Automatically. Run Five Miles and You Can't Find the Repair—It Is Welded to the Tire.

F. E. HOLCOMB PRESIDENT WILLIAMS FOUNDRY & MCH. CO.

At the annual meeting of the Williams Foundry and Machine Co. the following officers were elected: President and general manager, F. E. Holcomb; vice president, S. F. Ziliox; secretary and treasurer, William Leary. These officers represent the new interests who purchased control of the company last fall. Since that time the company has been reorganized and its manufacturing facilities greatly increased to meet the demands of a larger volume of business.

Included in the new additions to the plant is a large three-story brick building, each floor 40x275 feet, devoted exclusively to the manufacture of Akron-Williams tire repair equipment.

NEW ZEALAND DEALER INTERESTED IN AUTO ACCESSORIES.

J. B. Clarkson of Hope Gibbons Sons & J. B. Clarkson, Ltd., wholesale merchants of Wellington, New Zealand, has just returned from England and would like to hear from manufacturers or distributors of automobile accessories who are interested in developing their foreign trade. He is staying in New York at present, where his address is "R. W. Cameron & Co., 23 South William street." In several weeks he expects to leave for the Pacific coast en route for New Zealand.

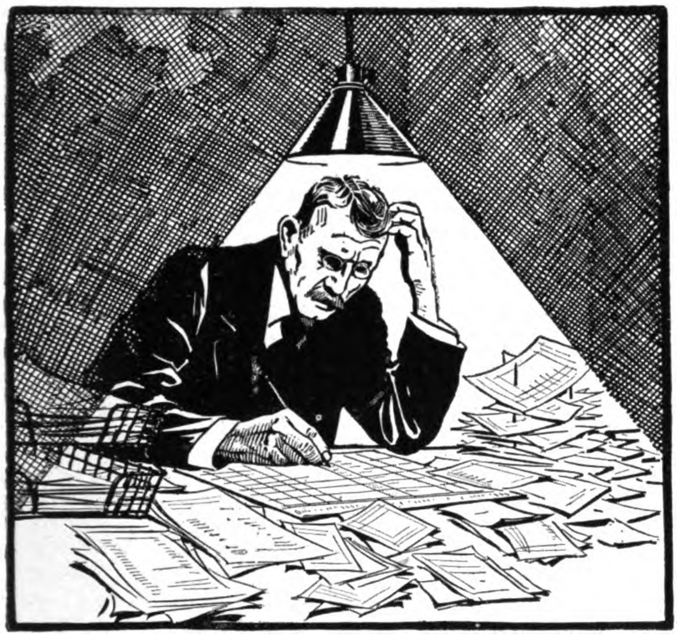
PURITAN MACHINE CO. HAS OVER 2,000,000 PARTS IN STOCK.

The Puritan Machine Co., Detroit, Mich., has solved one of the biggest questions confronting the garage and repair man at the present time as where to obtain service parts and supplies for the some 200 different makes of orphan cars still in use, and many of the up-to-date cars.

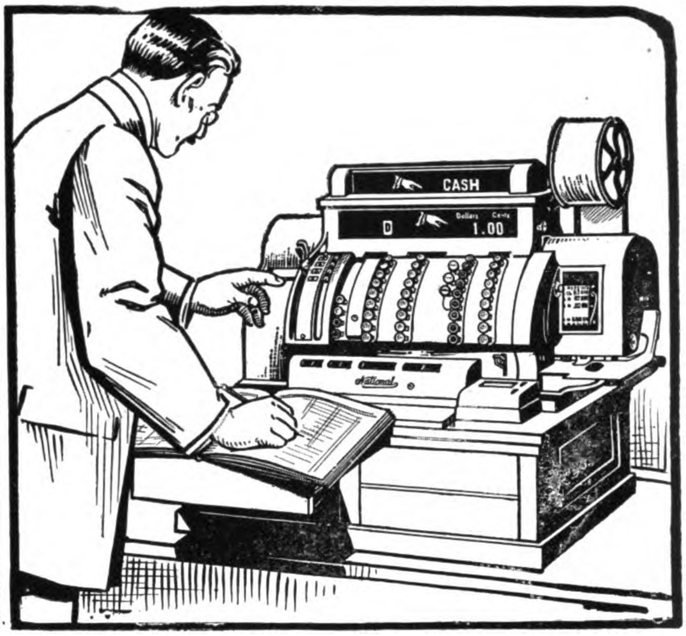
During the past 17 years the Puritan has accumulated one of the largest stocks of automobile parts and supplies in the world through such purchases as the Cartercar, Elmore, R. C. H. and others. This enormous stock, containing over 2,000,000 parts, is at the service of all garage men, repair men and owners.

In this way the Puritan is best doing her bit in helping the government save the consumption of new raw material. Motor cars must be had and repair parts must be had for the motor cars.

The Puritan can supply parts for nearly any car regardless of year or model without the usage of new material. They do not wreck cars, all parts are brand new.



The old way



The new way

A man should not do the work a machine will do for him

A merchant, with all his troubles, should never do the work that a machine does better and quicker.

Our newest model National Cash Register makes the records which a merchant needs to control his business. It does fifteen necessary things in three seconds.

Without the register a man cannot do these things in half an hour.

With the register, even a new clerk can do them just by pressing the keys.

Our new electric machines are as much better than old machines as an up-to-date harvester is ahead of a sickle for cutting grain.

The latest model National Cash Register is a great help to merchants and clerks.

It pays for itself out of what it saves.

Merchants need National Cash Registers now more than ever before

FILL OUT THE COUPON AND MAIL TODAY

Dept 3605, The National Cash Register Company, Dayton, Ohio.

Please give me full particulars about the up-to-date N. C. R. System for my kind of business.

Name________________________

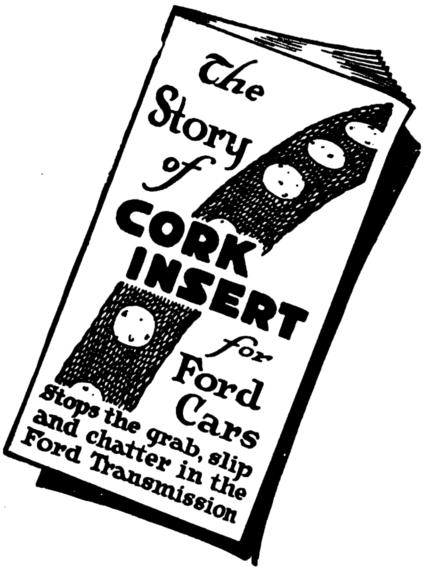
Business________________________

Address________________________

INSTRUCTIVE BOOKLET ON FORD TRANSMISSION ACTION.

A new booklet, just off the press, goes thoroughly into the question of transmission action of Fords. It tells how a smoother working Ford can be had simply by taking proper thought in the selection of transmission lining. The causes of the chattering and vibration which attends the transmission action in the Ford are analyzed, and the method of overcoming them clearly shown.

One of the features of the booklet, which is named "The Story of Cork Insert," is views of the factory where cork insert transmission lining is prepared. The big machines are shown which punch 24,000 sets of linings in an eight-hour working day. Also the rooms of girls are pictured in the act of setting the corks into the linings. One girl can set 10,000 corks in a day.



Another department of interest is the pages which give the experiences of Ford owners in the use of cork insert. After reading of the long mileage secured and the smoothness and quietness of operation, it is not difficult to understand why cork insert transmission lining has come into such extensive use during its first year on the market.

A copy of the booklet, "The Story of Cork Insert," will be mailed to any one who will address request to Advance Automobile Accessories Corporation, 56 E. Randolph St., Chicago.

DU PONT ADVERTISING DEPARTMENT OCCUPIES IMMENSE OFFICE.

E. I. Du Pont de Nemours & Co. of Wilmington, Del., has sprung an innovation in advertising circles by equipping an immense office building solely for the use of its advertising division.

Through the expansion of its varied lines and the acquisition by purchase of a number of allied industries the advertising division of this great company has increased to such an extent that from a pay roll of 11 people in 1911, it has grown until it now numbers a force of 200 advertising experts and assistants, under the able direction of George Frank Lord, the company's director of advertising.

In the columns of Kaiser Wilhelm's subsidized press considerable space has been devoted of late to gloating over the alleged abandonment of foreign advertising and curtailment of home advertising by American manufacturers. The Du Pont company, however, is one to which the stricture of the Kaiser's press does not apply. Instead of reducing its advertising expenditures the Du Pont company doubled its appropriation for the present year over that of the previous year and is planning to increase the sum still further for 1919.

The courageous action of the Du Pont company in doubling its advertising expense at a time when business conditions bordered on the chaotic served no doubt as an inspiration to other great companies which have since been following in the Du Pont footsteps and are keeping their names and products constantly before the public eye.

Another important feature of Du Pont advertising is the pioneer idea of group advertising of related industries, an idea which is certain to become typical of American advertising in the future.

Contrary to a generally accepted belief, the Du Pont company is not engaged solely in the manufacture of industrial and military explosives. In reality it is the greatest diversified industrial enterprise in the world. It manufactures more than 1000 peace products, which are widely used in the arts, sciences, industries and the home.

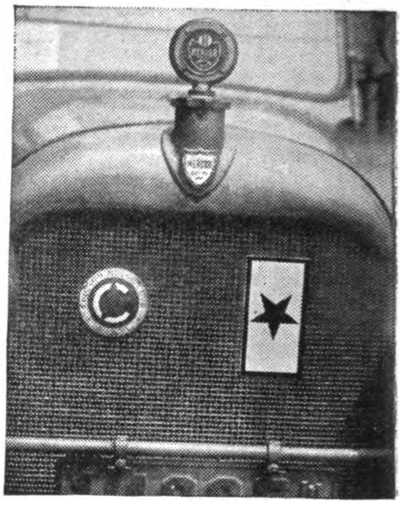
The advertising aims of the company are directed toward furnishing the public with complete information and education as to the uses and proper methods of use of their multiplicity of products. In consequence the importance of the advertising division has increased in proportion to the growth and expansion of the company.

The Du Pont American industries and the advertising managers of the individual companies are: The Arlington Works, A. R. Kneale; Du Pont & Harrison Chemical Works, L. B. Steele; Du Pont Fabrikoid Co., A. H. Berwald; Du Pont Dye Works, S. F. Withe; Harrison & Bridgeport Paint Works, J. Coleman Bentley; Industrial Explosives, E. F. Carley; Agricultural Explosives, F. W. Wilson; Sporting Powders, Edmund Doremus.

The Canadian advertising of the Arlington Co., Ltd., and the Du Pont Fabrikoid Co., Ltd., both of Canada, is in charge of J. M. Cane. In addition to the above mentioned industries the company recently acquired a large interest in the General Motors Co. In view of the thoroughness with which the Du Pont Co. applies itself to any proposition, it is safe to predict that its venture into this field will have a marked influence on the future of the automobile business in this country.

PATRIOTIC AUTOMOBILE RADIATOR SERVICE FLAG ORNAMENT.

Every one with a member of his family in the service has good cause to be proud of the fact and the display of a service emblem indicating the fact is also a service to the nation as well, as it maintains before the public the fact of the large number of young men who are serving their country, thus keeping the spirit of patriotism constantly enlivened. The service flag idea has been appropriately adapted for the motorist in the form of a handsome steel radiator emblem, as shown in the accompanying cut. It is finished in red and blue colors that will not fade or become dim, and is 3 1/3x5¾ inches. It is made of 28 gauge steel, has beveled edges and is complete and ready to attach.



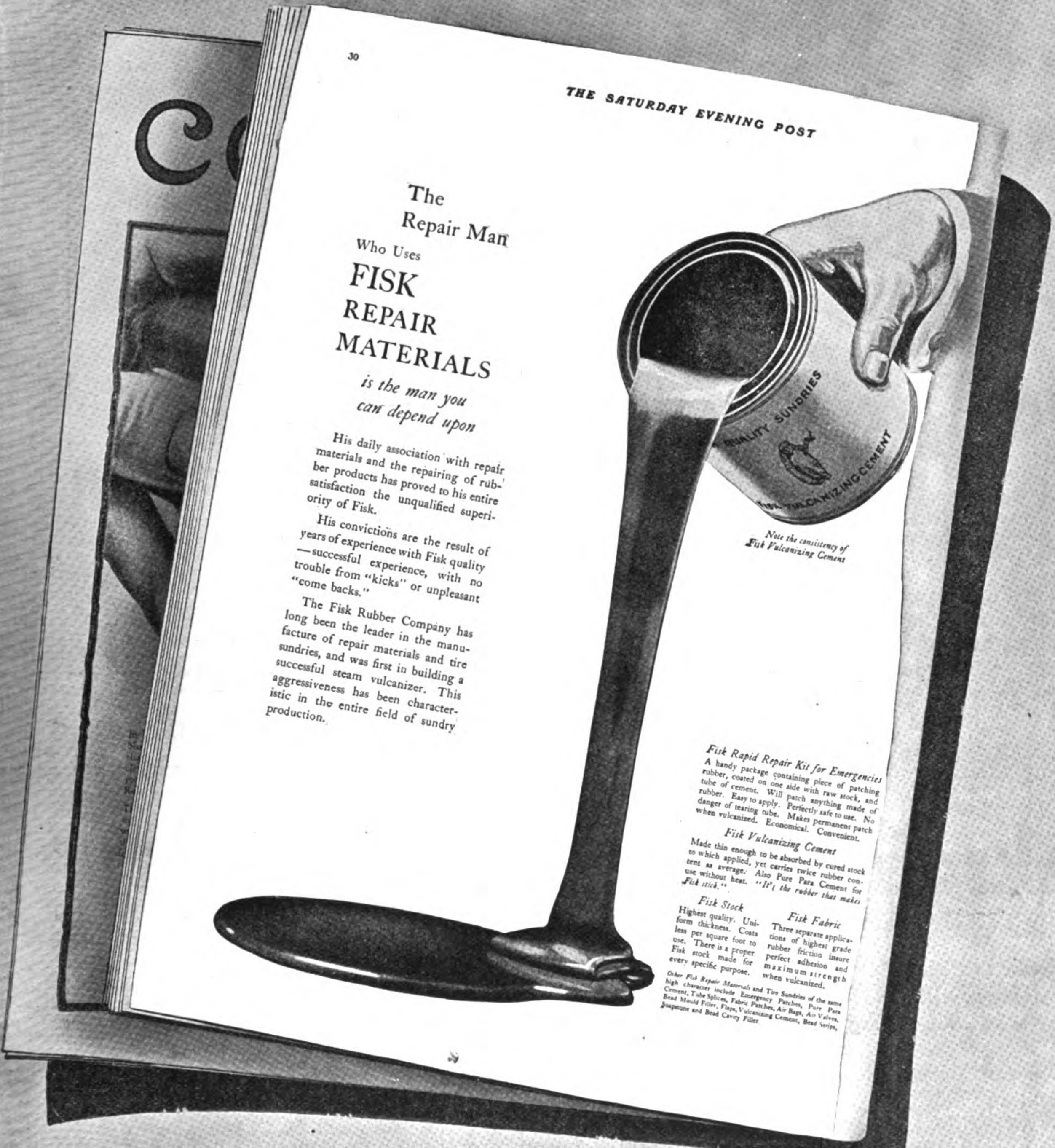
Patriotic Automobile Radiator Service Flag Emblems, as they are called, sell at 50 cents each and the makers offer liberal discounts to dealers and jobbers, which will be given upon application. The makers are the L. & M. Service Specialty Co., 504 Sherman St., Chicago, Ill.

Another Advance in Price of Ford Cars

Increase of $75 Brings Touring Model Up to $525, Within $25 of 1914-15 Price.

The Ford Motor Co. has again increased the price of the Ford car, adding $75 on the price of the touring model, which has been selling at $450 since February of the present year, when a previous advance of $90 had raised the price to that figure.

In August, 1914, when the European war broke out, the Ford touring car sold at $50. A year later the price was reduced $60 to $490, and in August, 1916, another cut of $130 a car was made, bringing the price down to $360. This was the lowest level reached, and compares with $525, the new price that went into effect this month.


C
QUALITY SUNDRIES
VULCANIZING CEMENT

30

THE SATURDAY EVENING POST

The
Repair Man
Who Uses
FISK
REPAIR
MATERIALS
is the man you can depend upon

His daily association with repair materials and the repairing of rubber products has proved to his entire satisfaction the unqualified superiority of Fisk.

His convictions are the result of years of experience with Fisk quality—successful experience, with no trouble from "kicks" or unpleasant "come backs."

The Fisk Rubber Company has long been the leader in the manufacture of repair materials and tire sundries, and was first in building a successful steam vulcanizer. This aggressiveness has been characteristic in the entire field of sundry production.

Note the consistency of Fisk Vulcanizing Cement

Fisk Rapid Repair Kit for Emergencies

A handy package containing piece of patching rubber, coated on one side with raw stock, and tube of cement. Will patch anything made of rubber. Easy to apply. Perfectly safe to use. No danger of tearing tube. Makes permanent patch when vulcanized. Economical. Convenient.

Fisk Vulcanizing Cement

Made thin enough to be absorbed by cured stock to which applied, yet carries twice rubber content as average. Also Pure Para Cement for use without heat. *"It's the rubber that makes Fisk stick."*

Fisk Stock

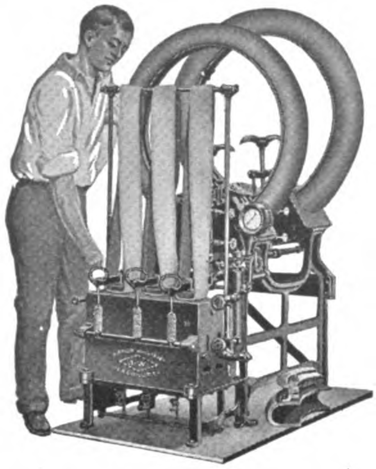
Highest quality. Uniform thickness. Costs less per square foot to use. There is a proper Fisk stock made for every specific purpose.

Fisk Fabric

Three separate applications of highest grade rubber friction insure perfect adhesion and maximum strength when vulcanized.

Other Fisk Repair Materials and Tire Sundries of the same high character include Emergency Patches, Pure Para Cement, Tube Splices, Fabric Patches, Air Bags, Air Valves, Bead Mould Filler, Flaps, Vulcanizing Cement, Bead Strips, Soapstone and Bead Cavity Filler

Advertising Fisk Repair Materials as well as the Man Who Sells Them, in the Saturday Evening Post, Collier's, Literary Digest and American Motorist—the Fisk Policy is to help Fisk merchants in every way—there are many more advantages to derive in selling Fisk products. Write Dept. Q, The Fisk Rubber Company of N. Y., Chicopee Falls, Mass., for complete information.



This Machine will keep the

PROFITS

coming in all the year 'round

Do Tire Repairing

as a new business, or in a corner of your store or garage; get your share of this steady, profitable and increasing business that now passes your doors.

War-time economy and the rising prices of new tires are compelling car owners to keep their tires and tubes repaired over and over again to give the utmost mileage. Tire-repairing like motoring goes on all during the year.

Get on the **Profit Side** of present conditions by starting a tire repair business with

Akron-Williams

TIRE REPAIR EQUIPMENT

Designed and Perfected by the Foremost Tire Engineers. Used and Sold by over 100 Leading Tire Companies.

You can Start in a Small Way with small capital and add equipment as your business grows. There's an Akron-Williams outfit for every size shop and a machine or tool for every purpose in tire and tube repairing. No equipment is too large for us—no tools too small.

Complete Instruction in All Branches of tire and tube repairing is arranged for Akron-Williams users under the personal direction of experts in the big tire factories—and we help you locate where opportunities are best.

☛ **PROMPT SHIPMENTS** ☚

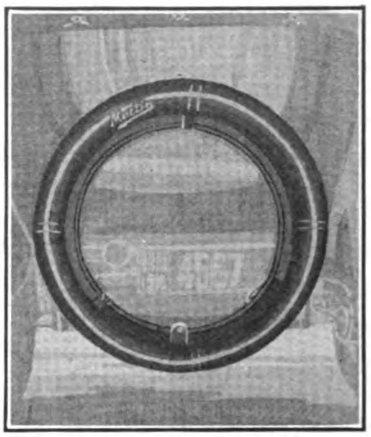
Write today for Catalog and full information.

AKRON-WILLIAMS A-W PRODUCTS

THE WILLIAMS FOUNDRY AND MACHINE CO.
Ash Street Akron, Ohio

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.
Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts.
The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

Removal Sale

In order to save moving material to new and larger quarters, I offer the following new material at much reduced prices:

Westinghouse No. 209 R generators, 6 volt complete with regulator, each	$20.00
Hartford Shock Absorbers, per set of 4, each	12.00
Eisemann 6 cyl. magnetos, automatic advance, clockwise rotation, each	37.50
Six cylinder Motors (Unit Power Plant 3½x5), each	165.00
Warner Transmissions with clutch and lever for above motor complete, each	40.00
Timken Bearings No. 315, each	1.80
Timken Bearings No. 365, each	2.25
Timken Bearings No. 418, can be used to replace No. 415, each	2.70
Timken Bearings No. 444, can be used to replace No. 440, each	2.80
Annular Bearings No. 219, assorted makes, each	15.00
Annular Bearings No. 314, assorted makes, each	$12.00
Annular Bearings No. 316, assorted makes, each	17.00
Large Truck Radiators, suitable for tractors, each	30.00
Two conductor Steel Armored Wire (B & S) No. 14, per 1000 feet	42.00
Three conductor cloth Black Braided Wire, per 1000 feet	32.50
Primary wire No. 14 Brass braided cover, 41 strand, per 1000 feet	28.00
Flexible Steel Tubing, ⅜" I. D. ½" O. D., per 1000 feet	20.00
Spicer Universal Joints, each	3.50
Universal Joint Companion Flanges, assorted sizes, each	.50

I also have a large stock of other bearings and other material such as lamps, ignition sets, magnetos, wire, steering gears, axles, etc. Send for complete list.

S. BREAKSTONE,

After Sept. 1, 1918 at 1322-26 Michigan Ave. **1526 Wabash Ave., Chicago**

Shurnuff

TRADE MARK

Necessities for Ford Cars

Shurnuff Grease Retainers: Price, per pair, 90c; in Canada, $1.35.

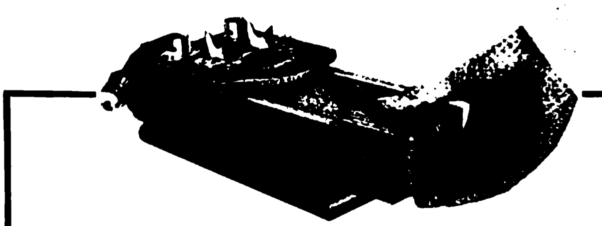
Shurnuff Running Board Fender Support: Price, per pair, $4.50; west of Rockies, $4.75, in Canada, $6.75.

Shurnuff Combination Manifold: Price, $9.00; west of Rockies, $10.00, in Canada $12.50.

Shurnuff Windshield Ventilator: Price, $7.50; west of Rockies, 7.75; in Canada, $11.25.

Write for full particulars and illustrated descriptive literature. A profitable line for you.

Shurnuff Mfg. Co., Dept. E. St. Louis, Mo.
Sales Dept., The Zinke Co., Chicago, Ill.



You Need This Tester

A money-saver and indispensable convenience for every garage, dealer and service station. For testing automobile lamps, spark plugs, electric horns, coils, battery jars, Ford coil units, and for locating short circuits, grounds, etc. May also be used to start Ford cars in cold weather. Simple, complete and compact. Accurate, reliable and trouble-proof.

Four styles of Jefferson Combination Testers—two attachable to alternating current lighting circuit and two for use with storage batteries or dry cells. Write today for free illustrated folder "The Modern Method of Testing", giving prices and full descriptions.

Jefferson Electric Mfg. Co.

429 So. Green Street, Chicago

JEFFERSON

Combination Testers

"Best for Every Test"

REMOVE *ANY* RIM

with the

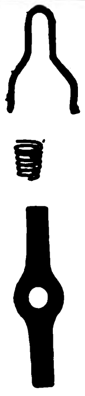
"Lawco" Rim Tool

(Patents Pending)

Do in a minute what now takes an hour without injury to rim, tire, or valve stem. Use the "Lawco" Rim Tool. Closes compactly. Weighs 5½ pounds. Only $3.50.

Dealers write for proposition

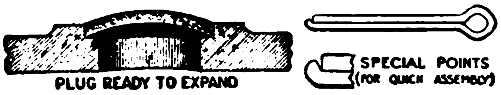
Dept. G. THE F. H. LAWSON CO., Cincinnati, Ohio



SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

16 lbs. Assorted Springs	**$2.00**
25 lbs. Assorted Cotters	**5.00**

Subject to Market Changes.
Send for Catalogue.



PLUG READY TO EXPAND
SPECIAL POINTS (FOR QUICK ASSEMBLY)

Welch Patent Expansion Plug.
For Closing Core Holes.

M. K. HUBBARD SPRING CO., Pontiac, Mich.

VULCAN

QUALITY

AUTOMOBILE SPRINGS

Immediate shipment VULCAN seven leaf, heavy, oil tempered, fronts for the Ford. 588 other types, 90,000 springs in stock. Liberal discounts.

JENKINS VULCAN SPRING CO.

Factory and General Offices, Richmond, Indiana.

Branches with full stocks

St. Louis, Missouri	1402 Chestnut Street
Minneapolis, Minn.	1024 Hennepin Avenue
Dallas, Texas	209 South Houston Street
Reading, Pa.	538 Franklin Street
Sumter, S. C.	29 Caldwell Street

Real Harvey Service

RACINE

Speed in delivery, quality in materials, dependability in performance, accuracy in fit—these are the things which will win for you the loyalty and friendship of your customers—these are the things which combine to make Harvey Service predominant in the motor trade.

There's A Harvey Jobber Near You

Drop us a card and we will send you his name and our Spring Book giving complete weights, styles, measurements and prices of over 900 different kinds of springs. Write today—you may need Harvey Help tomorrow.

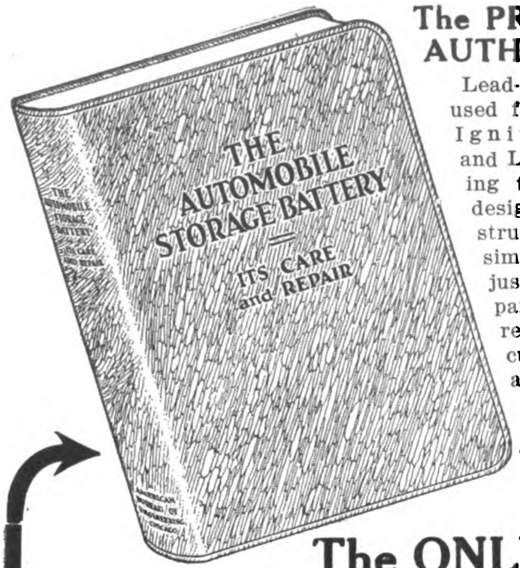
Harvey Spring & Forging Co.
611 17th St., Racine, Wis.

The MANLEY GARAGE AND SHOP EQUIPMENT

Every garageman and repairman should get our catalog. You'll find in it just the time and labor savers you need, and their prices will astonish you by their moderateness.

Send for your copy of this catalog today

THE UNITED ENGINE & MFG. CO.
Hanover, Pa.



The PRACTICAL AUTHORITY of

Lead-Acid Batteries used for Automobile Ignition, Starting and Lighting, covering the theory of design and construction. In a simple way tells just how to repair, restore and rebuild to secure full power and efficiency.

The ONLY

BOOK that deals extensively of all repairs that can be practically made, written by an experienced engineer with the aid of many expert repairers.

It Deals with Batteries

from every viewpoint. The novice can read and understand, as well as the engineer. The most complete information ever published. Invaluable for repairers in every battery garage or service station.

Special Instructions

for different types of batteries in general use.

The book contains 280 pages, with 186 illustrations, graphs and charts, the section devoted to Rebuilding has 131 cuts, many from special photographs, detailing repair methods.

5 Days Free examination and refund of purchase price if not satisfactory.

HANDSOMELY BOUND IN FLEXIBLE LEATHER COVER.... **$5.00**

Published by

THE AMERICAN BUREAU OF ENGINEERING, Inc.
1032 So. Wabash Ave.
Chicago, Ill.

TEAR COUPON OFF AND MAIL BACK

Date................19

The American Bureau of Engineering, Inc.,
1032 So. Wabash Ave., Chicago, Ill., U. S. A.

You may send me at once one copy of **The Automobile Storage Battery,** for which you will find enclosed

Check
Money Order } For Five ($5.00) Dollars.
Draft

It is understood that if the book is not entirely satisfactory to me, I may return it within five days at your expense and you will refund my money. I am the judge as to satisfaction.

....
Signature

....
Place

....
Street and Number

ONE GALLON
BLUE RIBBON
TRADE MARK
REGISTERED U.S. PAT. OFFICE
GREASELESS CREAM
AUTOMOBILE
BODY GLOSS
INDIANAPOLIS, IND.

KEEPS THE BODY OF YOUR CAR

Shining

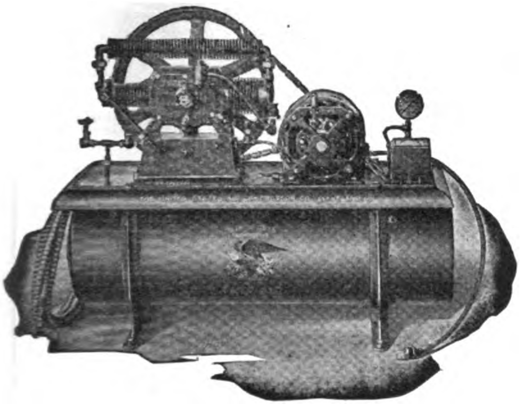
LIKE A MIRROR

No Grease to Catch Dust
Does Not Coat the Finish
Best Furniture Polish Made
Use With Spray if Desired

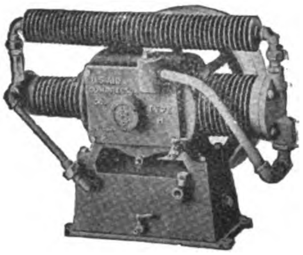
International Metal Polish Co.
INDIANAPOLIS, INDIANA

The United States line comprises 20 different numbers in Two Stage and Single Stage Types, and various individual equipment adapted for forming combinations of almost unlimited kinds and capacities.

The World's Best Air Compressor—The U. S. De Luxe Two Stage Automatic Air Unit. Contains 14 noteworthy refinements and improvements. The ideal unit for free air stations, garages and tire shops. Capacity, 4 cubic feet per minute. Completely self contained.



Consider the Judgment of Millions of Autoists



A single cylinder (single stage) hand pump is now rarely, if ever seen. Automobile owners have learned the superiority of the compound (two stage) pump and the single stage device has just naturally passed out of existence.

If garage and tire repair men would consider these facts in purchasing a power air compressor few would buy anything but a **two stage** compressor.

If the two stage principle is superior in the hand pump it is obviously superior in the power pump. This is specially true of United States Two Stage Air Compressor because, while utilizing the same proven principle as the hand pump, they contain no stuffing boxes (the one objectionable feature of hand pumps) and furthermore, because they are improved in 14 other important details. The catalog describes all these features in complete detail. Everyone should have a copy. Send coupon for yours today.

The United States Air Compressor Co.

6532 Carnegie Avenue, Cleveland, Ohio.

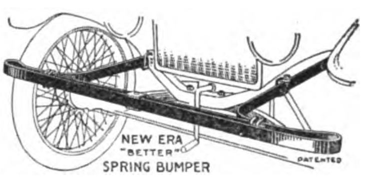
Please send your new catalog advertised in Accessory and Garage Journal to

Name........................ Address...................... City..........................

DETROIT BATTERIES

For every make and model of motor car carrying an electric starting system. Replacements on cars no longer manufactured can be had promptly.

Detroit Battery Co.
Detroit, U. S. A.



New Era "Better" Spring Bumpers

Double front bar full length, 1-$^{3}/_{4}$"x$^{5}/_{16}$" spring steel, has great resisting power, is light, strong and neat, guaranteed against damage or defective parts. Made to fit all cars. For sale by first class dealers everywhere.

New Era Spring & Specialty Company

1177 Hamilton Ave., Grand Rapids, Michigan.

CHASE *Leatherwove* "Tis like the hide in most respects In some respects its better"

CHASE MOHAIR VELVETS FOR UPHOLSTERY

CHASE DREDNAUT Motor Topping

CHASE PLUSH AND WOOL MOTOR ROBES

Familiarize yourself with Chase Products.

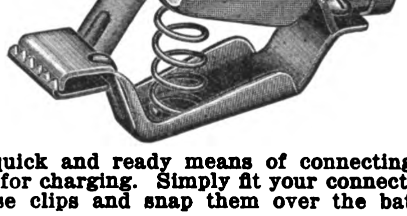
The choicest of upholstery fabrics for motor cars, Leatherwove or Mohair Velvets.

Wonderful robes for the Motorists.

L. C. CHASE CO.
BOSTON

New York San Francisco Detroit Chicago

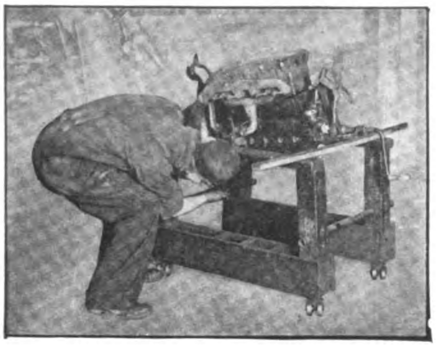
UNIVERSAL BATTERY CLIPS



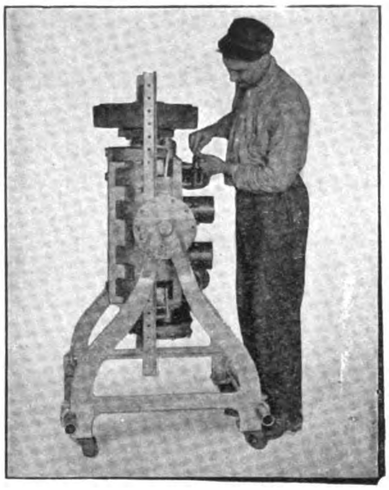
Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals. **No. 21-A—lead plated—1½" spread of jaws. Sample mailed postpaid for 15c in stamps.**

Single Lots, Each 20c. Lots of 10, Each 15c. Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.



THE OLD WAY
Expensive and Inefficient



THE CONTINENTAL WAY
Saves Time, Money and Labor

CONTINENTAL AUTO PARTS CO.
Continental
KNIGHTSTOWN, INDIANA U.S.A.

Would You Read Your Paper Upside-down?

Why ask your mechanics to stand on their heads to repair a motor?

—DON'T—

Install Continental Motor Stands Today

Catalogue on request

Push Your Business —

I'll Show You How to Increase Your Winter Trade.

THERE is business all around you. Good, profitable business that will bring in many an extra dollar. Don't wait for spring. Do business all winter. I'm helping garage men and supply dealers to do more business. I'll help you. Write on your business paper that you're ready for more business. I have nothing to sell but service backed by nine years' experience in promoting sales successfully.

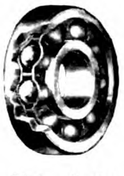
Write
Edward W. Bacon
BACON SERVICE
151 Grand St., New York

King Safety Tail Light takes the fear out of night driving—

Equip your car with one NOW

For particulars write

KING-BULL MFG. CO.
123 E. Ontario St.
Chicago.



NEW DEPARTURE
BALL BEARINGS

Strength
Stamina
Service

The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

20 10 0 10 20
DISCHARGE
AMPERES
CHARGE
B-W MFG. CO.
ST. LOUIS, MO

B-W DIRECT CURRENT

STURDILY CONSTRUCTED to retain accuracy under the most severe conditions. Handsome in appearance. Made in both flush and surface types. Finished in bright nickel or black rubberoid as desired.

Better Ammeters Cannot Be Purchased. PRICE.......$1.90

Send For Literature
Ballman-Whitten Mfg. Co.,
4440 Olive St. St. Louis, Mo

AMMETERS

STA-TITE
PISTON
RINGS
ELIMINATE
ALL PISTON
RING TROUBLES
THE Piston RING COMPANY
SPECIALISTS IN PISTON RINGS
MUSKEGON MICHIGAN

WM. B. SCAIFE & SONS CO.
PITTSBURGH, PA.
BRAZED
AIR TANK

SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

BUILD UP BIG BUSINESS-MAKE BIG MONEY

Open a Tire Repairing Shop, the great money making business of the age. Work will pour in. Men starting without experience — now making big money. We instruct you free. Outfit pays for itself. We have splendid vacancies to fill. Golden opportunity.

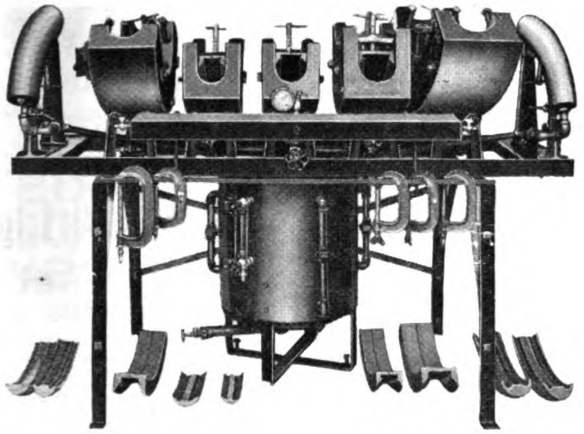


Illustration shows Vanderpool 5 cavity model that does every kind of repairing ($100.00 worth a day). Also made in 2 and 3 cavity (smaller) size.

Price of new tires going up so high, car owners MUST have old tires repaired. But be sure—get the RIGHT outfit. There is but one that operates upon CORRECT principle— the

VANDERPOOL VULCANIZER

Only vulcanizer recommended by leading Tire factories because the only one that repairs tires EXACTLY AS THEY WERE MADE. The VANDERPOOL is the vulcanizer now bought by VETERAN Tire Repairers after trying other makes and DISCARDING them. Cheapest of all to operate. Write for Free Book of instructions. Tells everything. Testimonials from Vanderpool users now making big money. Get into business for yourself. Be independent !

In answering address Dept. B

THE VANDERPOOL CO., Springfield, Ohio

Don't Have the Constant Fear of Losing Your Job

For "Every Other Car"

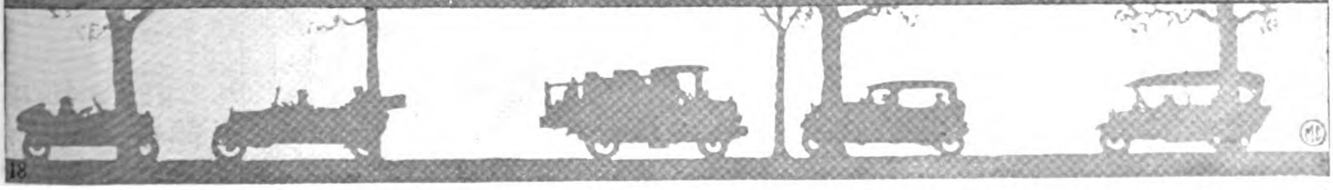
Here is a complete Automobile Screw Plate for Ford cars, consisting of Taps, Dies, Reamers, Stocks, Tap Wrenches fitted for the requirements of the Ford. It is called a Garage Repair Set, but is equally valuable to the dealer and car owner—in fact every one who has occasion to care for a Ford car can use and needs this set. It is furnished in a well made wooden box, handy for general use and to carry on the road to repair jobs.

As Ford led in standardized production of automobiles, so has G. T. D. led in the standardization of screw threads. This set consists of selected G. T. D. products to fit the Ford requirements. It is a sound investment, as proven by the large numbers sold and in use.

On sale by the best dealers—write us for particulars and catalog.

GREENFIELD TAP & DIE CORPORATION
Greenfield Massachusetts, U. S. A.

New York, 28 Warren St. Chicago, 13 South Clinton St.
Canadian Plant, Wells Brothers Company of Canada Limited, Galt, Ontario.



ADAMSON

VULCANIZERS

Dealers! Sell This ONLY COMPLETE LINE!

FOR TUBE PUNCTURES:

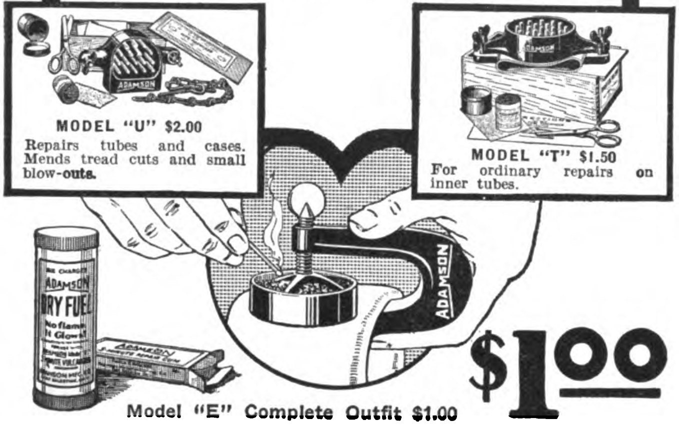
Use Adamson Model "E"; pour in a measure of Adamson Dry Fuel; touch a match, and the fuel burns with a hot glow—no flame—vulcanizing the patch permanently in 5 minutes. Use gasoline instead of Dry Fuel if desired. Extra can of Dry Fuel, 50c; extra box of 12 patches, 25c.

MEND CASINGS AND LARGER TUBES

injuries with other Adamson models priced from $1.50 to $12.00—sold by all Jobbers.

Send for catalog and Dealer Helps.

ADAMSON MFG. CO., EAST PALESTINE, O.



MODEL "U" $2.00
Repairs tubes and cases. Mends tread cuts and small blow-outs.

MODEL "T" $1.50
For ordinary repairs on inner tubes.

$1.00

Model "E" Complete Outfit $1.00

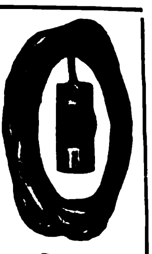
ELECTRIC GLUE POT

Mabey's Dry Heat Electric

Glue Pot

No flame; no soot or smoke. All danger of fire is eliminated

Capacity	Price without cover
1 qt.	$ 9.50
2 qts.	11.00
3 qts.	12.75
4 qts.	15.75

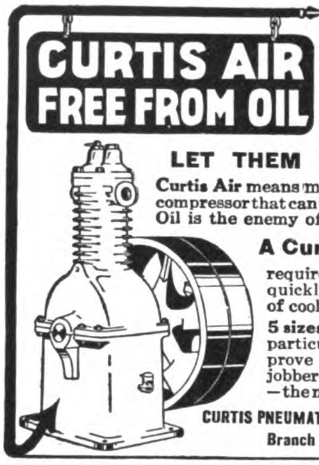


Century
Automobile Cigar Lighter, Complete $1.00 Each, F. O. B. Indianapolis.

DEALERS—Write For Prices.

MABEY'S ELECTRIC & MFG. CO.

968 Ft. Wayne Avenue **INDIANAPOLIS, IND.**



MOTORISTS *Have* CONFIDENCE IN THIS SIGN

LET THEM FIND IT AT *YOUR* DOOR.

Curtis Air means more mileage, because **Curtis** is the only air compressor that can't flood cylinder with more oil than it can use. Oil is the enemy of rubber. It rots tires, causing blow-outs.

A Curtis Compressor Is Dependable

requires practically no attention, costs very little, quickly pays for itself, always delivers the kind of cool, clean air that makes tires last longer.

5 sizes and 125 combinations. Write for full particulars and let us tell you why the **Curtis** will prove to be your best investment. Ask your jobber for prices—but be sure and mention **Curtis**—the name is your protection against substitution

CURTIS PNEUMATIC MACH. CO. 1621A Kienlen Ave. St. Louis, Mo.
Branch Office: 531A Hudson Terminal, New York

BADGER

SEAT COVERS

For practically all makes of cars. Ready to put on immediately. Perfect fit guaranteed. Superiority in material, workmanship and appearance that insures bigger, better, more profitable business.

Sold only through dealers.
Write for Prices and Samples.

WISCONSIN AUTO TOP CO.
RACINE ∴ ∴ WISCONSIN

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

Strengthen Your Advertising Literature

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

Ross-Gould
Mailing
Lists **St. Louis**

Burke

Automobile Products

Automobile Devices Company
Sole Manufacturers

Real Estate Trust Building, Philadelphia
First National Bank Building, Chicago
2010 Broadway, New York

BUNTING BEARING BRONZE
B.B.B.CO.

BUNTING CORED BARS

Should be counted an essential in your business. Because you haven't needed it today is no reason you won't need it bad tomorrow. Be prepared. Same quality as we are supplying all the leading automobile and tractor manufacturers. None better. Always allow 1-16" for inside and outside finish.

All leading jobbers
Ask for catalog N

The Bunting Brass & Bronze Co.

727 SPENCER STREET
TOLEDO, OHIO.

BUNTING BEARING BRONZE

IT'S STANDARD

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3½
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15⅛
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20

TRADE OUTLET

AUTO SALVAGE CO., INC.

The World's Largest New and Used Parts House. St. Louis, 2823-25 Locust St.; Kansas City, 1701 Main St.; Cincinnati, 314 E. Third St. Write to nearest office.

Parts for any Automobile at a saving of 50% to 80%. Our three great plants cover every state in the Union, and we are therefore in better position to fill your orders.

Engines—40 to 50 of them on the floor now and we will make prices on them that will move them. Several unit power plants.

Transmissions—Planetary, two-speed, three-speed, four-speed, center control, with and without multiple disc clutch; all at surprisingly low prices.

Rear Axles—From the Timken to the Ford, many with transmission on them, at prices from $10 to $75.

Our Guarantee: You Must Be Satisfied. Any article purchased from us which does not in your opinion, give satisfaction or fit, can be returned to us at our expense and your money will be cheerfully refunded.

Auto Parts

SAVE AT LEAST 50%

We have in stock at all times parts for Stearns, Stevens-Duryea, Flanders, Maxwells, E. M. F., Buicks, Mitchells, Speedwells, Herreshoffs, Hudsons, Elmores, Pope Hartfords and Franklin cars.

Write, Wire or Phone.

BOSTON AUTO PARTS CO.,
1240 Dorchester Avenue, Boston, Mass.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. **40 Mathewson St. Providence, R. I.**
Phone Union 4179-R.

Bosch Magnetos

We sell all types of Bosch Magnetos at low prices.

D R 4 and 6	$15.00
D-U-4	$20
D-4 and 6	$10
A Coils	$8

All types of 2-spark Bosch's, Magneto Coils, etc.

Communicate with

S. J. SEINIGER
453 Washington St., Boston, Mass.

Send it to Detroit

MAGNETOS.

Bosch DU-4 Variable spark	$30.00
Bosch Du-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cyl. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	10.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hour service. Member Detroit Automobile Trade Association.

Driver Magneto Exchange
192 Grand River Ave. Detroit, Mich.

GUARANTEED AUTO PARTS
At Worth While Savings.

We have in stock at all times parts for almost every make of car.
MAGNETOS, CARBURETORS, WINDSHIELDS, REAR ENDS, TRANSMISSIONS, GEARS, ETC.
Your orders are given prompt attention. Write us your needs today.

USED TRUCKS.

Suitable for all kinds of delivery and hauling; all in perfect mechanical condition.
We can offer excellent bargains while they last. Let us hear from you.

BOULEVARD MOTOR CO.
276 River St., Cambridge, Mass.

We Are Exclusive
SELLING AGENTS
for the N. F. G.
CARLISLE CORD TIRE.
Dealers write for our special proposition.
CAMBRIA TIRE EXCHANGE.
204 Columbus Ave., Boston, Mass.

AUTO PARTS.
50% to 75% Off Mfg. Price List.

Parts for Packards, Buicks, Chalmers, Overlands, Jacksons, Fords and 75 others. You can save 50% to 75% from accessories.
Mail orders will be attended promptly.
Tel. Brockton, 910.

A. BERGER & SON,
104 Otis St., Brockton, Mass.

After working on your car wash your hands without water by using **"PARKO."**
Send 25 cents and dealer's name for a large can to
M. FRANKLIN,
28 School St., Boston, Mass.

TRADE MARK
TREADO
PATENTED MAY 9, 1916 REG. U.S. PAT. OFF.

Save Money On Your Tires

Here is a composition that not only makes an old, worn tire new, but actually prolongs the wear of your tire.

TREADO

adds thousands of miles to tires, it rebuilds worn treads, mends large and small cuts and can be applied by anyone. **TREADO** is a prepared rubber. Requires no cement, heat, patches or rubber.

Full directions on every can. Send today for a can at **50c.**

TREADO
Manufacturing Co.
42 Dwight St., Springfield, Mass.

Expert Repair Service

On Every Known

MAGNETO

BOSCH
SPLITDORF
EISEMANN

Repaired right by skilled workmen.

Generator - Armature Winding

All repairs promptly executed.

Guaranteed Ignition Outfits

$10.00 up

The Magneto Shop

JOHN BRUNSWICK.
187 Massachusetts Ave., Boston, Mass.

BODIES AT YOUR OWN PRICE.

Large stock of second hand Bodies and Parts—1912, 13, 14, 15 models to close out and make room for new models.
We Buy, Sell and Exchange.
AUTO BODY EXCHANGE.
414 Main St., Cambridge, Mass.
Tel. Camb. 1691—808.

TRADE OUTLET

Real Bargains With Puritan Quality For The Motorist

Piston Ring Special Prices

We have rings of every size for any car.

High-grade rings up to 5 inches, in dozen lots at, each	25c.
High-grade rings, 5 inches and over, in dozen lots at, each	45c.

New Made-to-Order One-Man Tops

We make the low, graceful one-man top to fit any car. It can be easily put in place, as it fits the old top fittings.

5-passenger one-man Mohair top	$45.00
7-passenger one-man Mohair top	47.50
Roadster one-man Mohair top	27.50
Ford Touring one-man Mohair top	35.00
Ford Roadster one-man Mohair top	25.00

These prices include the complete top, storm curtains, top dust-proof boot with special attachment for connecting top to any windshield.

Hartford Shock Absorbers

Complete set of two front and two rear absorbers with fittings ready to attach—for immediate delivery.

For Packard, Cadillac "8," Hudson Super-six and Haynes 1917 models, per set	$25.00
We can make fittings for many other cars and make delivery in 10 days. It is necessary for us to have the model type and the rear, as well as the name of the car, in order to insure a perfect fit, per set	$25.00

Extra Values in Casings and Tubes

These casings are factory seconds that will give excellent service. They do not have a mileage guarantee Both the casings and the tubes are good values and will go fast—better order early.

Casings

30x3	Smooth tread	$10.00
32x2½	Non-Skid	14.95
31x4	Non-Skid	20.00
33x4	Non-Skid	21.70
34x4	Non-Skid	21.95
30x3½	Non-Skid, Ford size	14.50

Tubes

30x3	Heavy grey tubes	$2.50
32x3½	Heavy grey tubes	3.85
31x4	Heavy grey tubes	4.65
33x4	Heavy grey tubes	4.90
34x4	Heavy grey tubes	5.15
30x3½	Red or grey tubes	3.06

PURITAN MACHINE COMPANY
108 Puritan Bldg., 415 Lafayette Blvd.,
Detroit, Michigan

REPAIR PARTS

For

Magnetos, Coils, Starter and Generator Systems, Brushes, Platinum Rivets.

H. & L. MFG. CO.
33-35 Liberty St., New York

AUTO PARTS—At Your Own Prices. We can supply parts for nearly every make of car. 648 Packards, Interstate Fours, also Truck parts, GMC and other makes.

Write us for Parts. We have them.

STRANDWAY AUTO PARTS CO.,
193-195 H. St., South Boston, Mass.

Superior Parts and Brushes

FOR ALL

Ignition and Starting Lighting Systems

Used for Years by the Best Repair Shops Everywhere.

"They Last Longer but Cost Less"

Write for Catalogue

Specialty Manufacturing Co.
637 Massachusetts Ave., Arlington, Mass.

Removal Sale

Westinghouse No. 209 R Generators, 6 volt, with regulators, new, each	$20.00
Westinghouse 6 volt systems, including frame 318 starter with Bendix drive and 400 frame generator with regulator and starting switch, new, per set	45.00
Gray & Davis type MG 9 combination starting and lighting systems, 6 volt, new	20.00
Remy L. E. coils with switch, new, each	3.50
Bosch DR-4, 2 spark magnetos, each	60.00

Send for Complete List of Other Bargains.

S. BREAKSTONE,
1526 Wabash Ave., CHICAGO.

After Sept. 1, 1918
1322-26 Michigan Ave.

ENGINE DRIVEN TIRE PUMP

FOR

FORD CARS

This pump is made especially for Ford cars, is as efficient and simple in principle and construction as it is in operation; drive gear attached to crank shaft and no machine work or drilling required;

Our price complete, $3.50

BASCOM
224 Columbus Ave., Boston, Mass.

MANUFACTURERS AND GARAGES. With our facilities we are especially equipped to handle large and small **Welding Jobs.**

Work done when you want it.
Correspondence invited.

WILKINS & HOVEY CO.,
35 Albany St., Cambridge, Mass.

Cast Aluminum Welding Sticks & Aluminum Solder for Auto Welding

Cast Aluminum Welding Sticks are furnished in ¼ inch and ⅜ inch diameter from stock. Guaranteed not over 2% zinc. The alloy is scientifically correct for welding.

Crank Cases, Automobile and all other castings.

W. F. ALUMINUM SOLDER.

Sample Bar with Instructions.
$1.00 Post Paid.

United Smelting and Aluminum Company, Inc.
General Offices, New Haven, Conn.
Branches, New York, Detroit, Chicago, Pittsburgh, St. Louis.

MAXWELL-METZ DEALERS

We carry at all times a full and complete stock of **Atwater Kent Parts.** Also complete systems and magneto replacements. We are also manufacturer's agents for the

Walden-Worcester Wrenches

Write for our Price List.

Atwater Kent Sales Co. of N. E.
883 Boylston St., Boston, Mass.

TRUCK OWNERS

What arrangements have you made to protect your Trucks against skids next Winter. It is a long way off, but so is the material.

NATHAN E. PACKARD,
221 Warren Ave., Brockton, Mass.

MAGNETOS

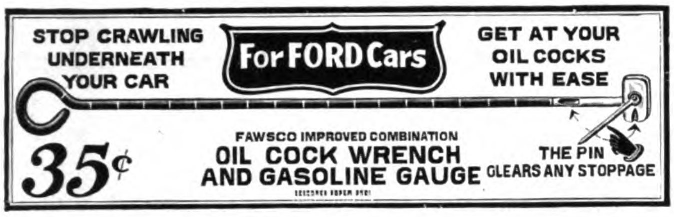
All electrical apparatus bought, sold, repaired.

Get Our Prices.

HERBERT AUCOCK.
185 Columbus Ave., Boston, Mass.
Established in 1910.

SELL A TOOL

A notched stick will turn an Oil Cock, but only our device will then tell whether the crank case is empty or the Cock stopped up.


STOP CRAWLING UNDERNEATH YOUR CAR
For FORD Cars
GET AT YOUR OIL COCKS WITH EASE
FAWSCO IMPROVED COMBINATION
OIL COCK WRENCH AND GASOLINE GAUGE
THE PIN CLEARS ANY STOPPAGE
35¢

Our Patented Wrench with Cleaning Pin is the Only Tool with This Feature

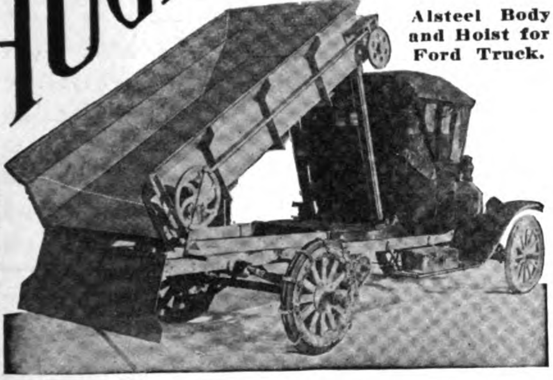
Dealer's Price Doz. $2.80

If your Jobber Cannot Supply, Write Us

J. H. FAW, Inc.

37 Warren Street
New York

AUGLAIZE HOIST



Alsteel Body and Hoist for Ford Truck.

Boosts the Load With the Least Effort

QUADRUPLE WORM GEAR

Built in sizes up to 5 tons. Weighs less than any other hoist and covered with a liberal guarantee. **Prices up to 1½ tons, $83.00; from 1½ to 5 tons, $109.00.**

AUGLAIZE ALSTEEL BODIES

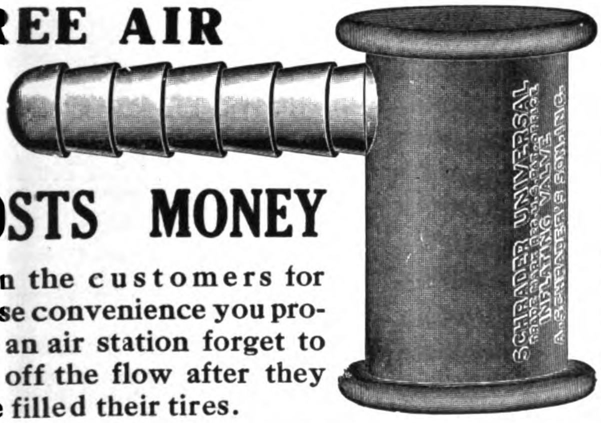
Staunchly constructed of all steel and guaranteed against defective material and workmanship. Will carry 50% overload. Prices range from $150.00 to $225.00, according to size.

Auglaize Special Alsteel Body and Hoist for Ford Truck

Carrying capacity from 2700 to 3000 lbs. of gravel, sand, crushed stone or coal; approximate weight, 550 lbs. **Retail price, $206.25. Equipped with the Auglaize Powerful, Speedy, Light-Weight Hoist. Dealers allowed a liberal commission and selling co-operation. Write at once for catalog and sales plans.**

THE AUGLAIZE MOTOR CAR CO, New Bremen, Ohio

FREE AIR



COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Automatic Inflating Valve

to your air hose. Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve. Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.25 in U. S. A.

W. S. S.

We Suggest Stamps
War Savings Stamps
Without Shells Soldiers
Would Soon Succumb
War Savings Stamps
Will Supply Soldiers
With Shells

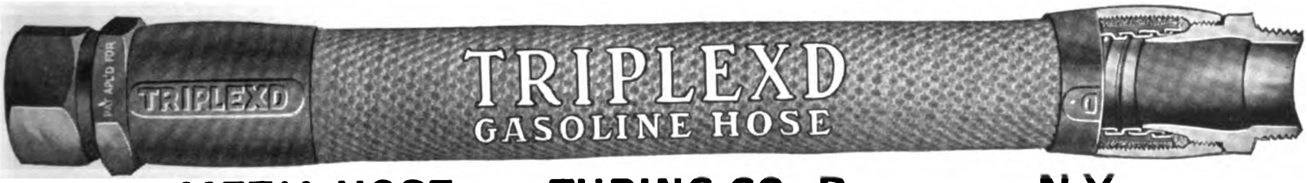
Buy all you can and help to win the war.

Manufactured by A. SCHRADER'S SON, Inc.
800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to owners of pleasure cars.



METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

Write to Dept. J-10 for illustrated matter and prices.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

"NORMA"

PRECISION BALL BEARINGS

(PATENTED)

To attain leadership is an achievement—to maintain it in face of competition is a greater achievement still. And what folly can be greater than that which hazards a leadership by a short-sighted sacrifice of even one of the so-called minor details upon which achievement has been built. A business structure built through the years may be destroyed in a day.

The proved super-service qualities of "NORMA" Precision Bearings, revealed in the records of hundreds of thousands of super-service ignition and lighting apparatus the world over, have beyond question been vitally contributive to the consistent performance of these equipments.

Be *Sure*—See That Your Electrical Apparatus Is "NORMA" Equipped.

THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK

Ball, Roller, Thrust. Combination Bearings

THE ACCESSORY AND GARAGE JOURNAL
INDEX TO ADVERTISERS

	Page
Adamson Mfg. Co	58
Advance Auto Accessories Corp	11
American Bureau of Engineering, Inc	54
Auglaize Motor Car Co	61
Automobile Devices Co	58
Auto Salvage Co., Inc	59
Bacon Service	56
Ballman-Whitten Mfg. Co	56
Bearings Service Co	4
Bilodeau Ball Bearing Works	64
Boston Auto Parts Co	59
Bowser & Co., Inc., S. F	63
Breakstone, S.	52-60
Brunner Mfg. Co	7
Bunting Brass & Bronze Co	58
Carborundum Co	2
Chase Co., L. C	55
Colorado Tire and Leather Co	3
Continental Auto Parts Co	56
Corning Glass Works	5
Corps Brothers	59
Curtis Pneumatic Machinery Co	58
Detroit Battery Co	55
Detroit Magneto Exchange	59
Dixon Crucible Co., Jos	64
Dyer Co., G. H	1
Faw, Inc., J. H	61
Fisk Rubber Co	51
Fitzgerald Mfg. Co	10
Greenfield Tap and Die Corp	57
Harvey Spring and Forging Co	53
Higgins Spring and Axle Co	Cover
Hubbard, M. K., Spring Co	53
International Metal Polish Co	54
Jefferson Electric Mfg. Co	53
Jenkins Vulcan Spring Co	53
King-Bull Mfg. Co	56
Lawson, F. H., Co	53
Liberty Accessories Corp	Cover

INDEX TO ADVERTISERS

(Continued)

Page

Mabey's Electric and Mfg. Co.......... 58
Martin Mfg. Co.......... 52
Metal Hose and Tubing Co.......... 61
Mossberg Co., Frank..........Cover
Mueller & Co., R. S.......... 55

National Bearings Service Co.......... 64
National Cash Register Co.......... 49
New Departure Mfg. Co.......... 56
New Era Spring and Specialty Co.......... 55
Norma Co. of America.......... 62

Piston Ring Co.......... 56
Puritan Machine Co.......... 60

Ross-Gould List and Letter Co.......... 58

Scaife, Wm. B. & Sons Co.......... 56
Schrader's Son, Inc., A.......... 61
Shaler Co., C. A.......... 12
Shurnuff Mfg. Co.......... 53
Specialty Mfg. Co.......... 60
Stenman Electric Valve Grinder Co., Inc.......... 63

United Engine and Mfg. Co.......... 53
United States Air Compressor Co.......... 55
United Motors Service, Inc.......... 8.

Vanderpool Co.......... 57

Walden-Worcester, Inc..........Cover
Webber Mfg Co.......... 64
Weston Electrical Instrument Co.......... 9
Wilkins & Hovey Co.......... 60
Williams Foundry and Machine Co.......... 52
Wisconsin Auto Top Co.......... 58

STENMAN ELECTRIC
VALVE GRINDER
THE STENMAN ELECTRIC VALVE GRINDER CO., Inc.
42 Southbridge Street WORCESTER, MASS.

BOWSER
ESTABLISHED 1885
OIL TANKS, PUMPS AND STORAGE SYSTEMS

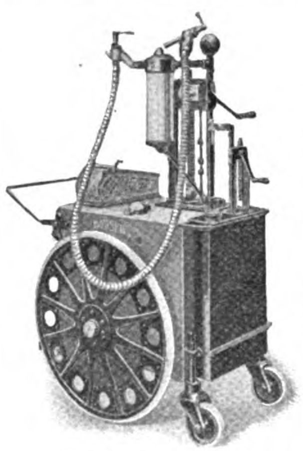


Fig. 121 Gasoline Wheel Tank

Figure 121 Gasoline Wheel Tank

Move it wherever you want it. Capacity, 50 gallons. Pumps pint, quart, half-gallon or gallon Locks. Measures Gasoline directly into automobiles. Can be fitted with Meter, Filter, Register and Slip Box for recording sales; Lubricating Oil Compartment, holding five gallons, pumping pint, half-pint or quarter-pint, as shown in illustration

Figure 154 Lubricating Oil Wheel Tank.

Move it wherever you want it. Capacity 65 gallons. Made in one or two compartments. Pumps and measures half-pint, pint or quart. Can be fitted with lock.

An efficient Lubricating Oil Salesman.

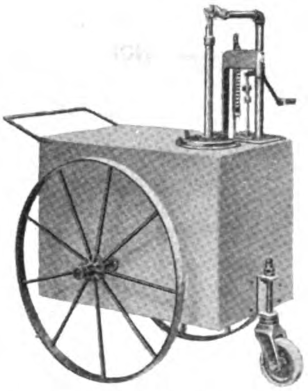


Fig. 154 Lubricating Oil Wheel Tank

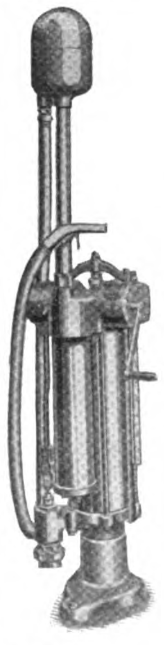


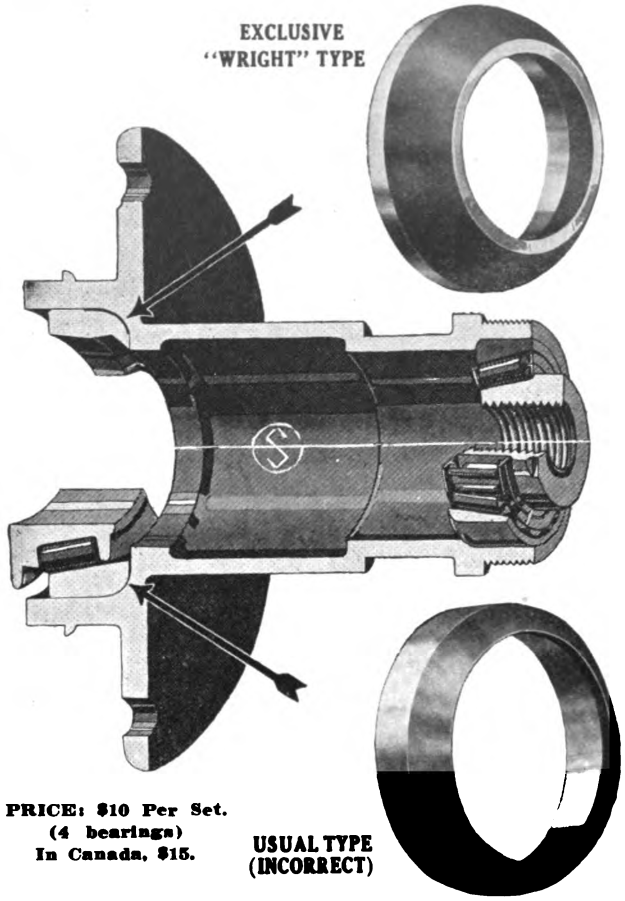
Figure 101 "Red Chief" Five-gallon indoor Gasoline Pump

Quickest and Fastest Indoor Pump made. Pumps quart, half-gallon, one, two, three, four or five gallons. Locks. Records, Filters and Measures Gasoline directly into automobiles.

For use with Underground Tanks.

Write for literature.

S. F. Bowser & Company, Inc.
FORT WAYNE, Indiana, U. S. A.



PRICE: $10 Per Set.
(4 bearings)
In Canada, $15.

The Only Scientifically Correct Roller Bearings for Fords

After continued tests in actual service a common fault in all taper roller bearings for Fords was discovered. The inner ring, being subjected to a continuous twisting strain, has a tendency to move out of position and thus ruin the bearing. Inability to provide a proper seat for the bearing is the primary cause of this trouble. With this fault in mind the Wright Bearing was improved by the addition of a second surface (see cut). This second surface being at right angles to the other holds the bearing firmly in place and makes it absolutely impossible to move.

A glance at the cuts will show the firm manner in which the Wright ring is seated in the hub and a comparison of the Wright ring (at top) with a general type of ring (at bottom) will show the radical difference in construction.

The fundamentally correct design of the Wright Bearing makes this feature (on which patents are pending) possible to the Wright type alone. No other bearing can have it without changing the entire design of the bearing itself.

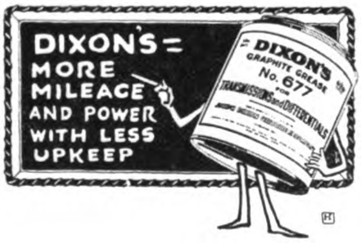
Thus the Wright Bearing, which embodies the correct fundamental principles of bearing design, has added another exclusive feature to an already proven superior product.

Ask your dealer or jobber to show them to you

NATIONAL BEARINGS SERVICE CO.
WRIGHT TAPER ROLLER BEARINGS
Replacements for all Standard types of Bearings

1412 Girard Ave., Philadelphia. **18 West 62nd St., New York.**

Wright Bearings are an Essential to Truck Units Using Fords or Chevrolets.



The Dixon Platform

More power—less repairs and lower upkeep—a quieter, longer-running car. The saving of wear, time and money. All are assured when you use

DIXON'S
GRAPHITE
Automobile
LUBRICANTS

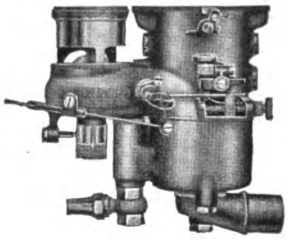
The selected flake graphite in them prevent troublesome, expensive wear.

Write for Dixon's Dealer's Deal No. 49-G.

Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

DXN TRADE MARK **Established 1827** DXN TRADE MARK



YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

More Mileage—More Power—More Speed

Get him to try it for 15 days. Satisfaction guaranteed

WEBBER MANUFACTURING COMPANY

Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway

Guaranteed Bearings
We Exchange Rebuilt Bearings for old or worn ones
BILODEAU BALL BEARING WORKS

ECONOMY *Plus* EFFICIENCY

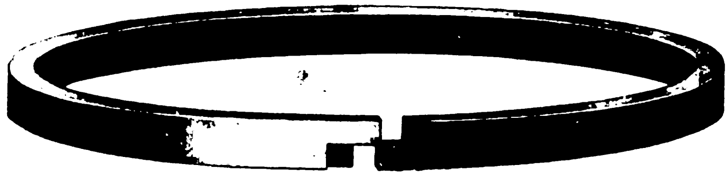
These words mean great strength toward winning the war. They form our policy—and by the standard of that policy we are continually schooling garage men and repair men to avail themselves of our exceptional service of Rebuilding Worn Bearings.

Bilodeau Rebuilds All Makes of Worn Bearings, to Run as True as When New.

Write at once for catalog, listing types, sizes and prices of standard bearings. Trade discounts confidential.

BILODEAU BALL BEARING WORKS
66 Stanhope Street, BOSTON, MASS.

IF YOU ARE A FORDITE



The Taylor Leakage-Proof Ring

Will Absolutely Cure Your Motor of Carbon Troubles and Loss of Compression

INCREASE

GAS MILEAGE, OIL MILEAGE, POWER

The Interlocking, Underlapping Joint keeps the gases **UP** and the oil **DOWN.**

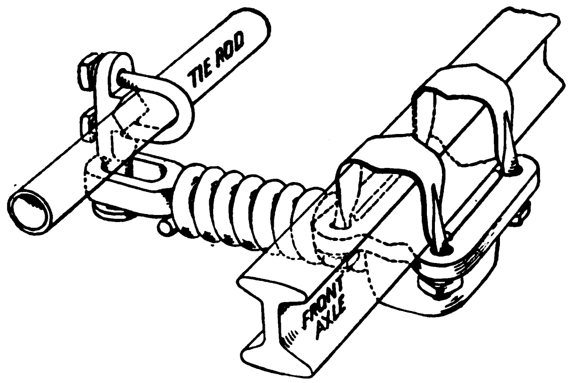
50c EACH

Made in 3¼x¼" size only

Strong, Durable, Eccentric, One-Piece.
No points to break or catch carbon.

Prevents Loss of Control:

1. **Making quick turns.**
2. **Striking obstacles.**
3. **Broken steering gear.**
4. **Front wheels skidding.**



Adds 50% To the Pleasure of Driving a Ford

THE D. & O. ANTI-WOBBLER

HOLDS THE STEERING WHEEL STEADY ON THE ROUGHEST ROAD.

Saves Tires! Saves Your Arms! Saves Your Nerves!

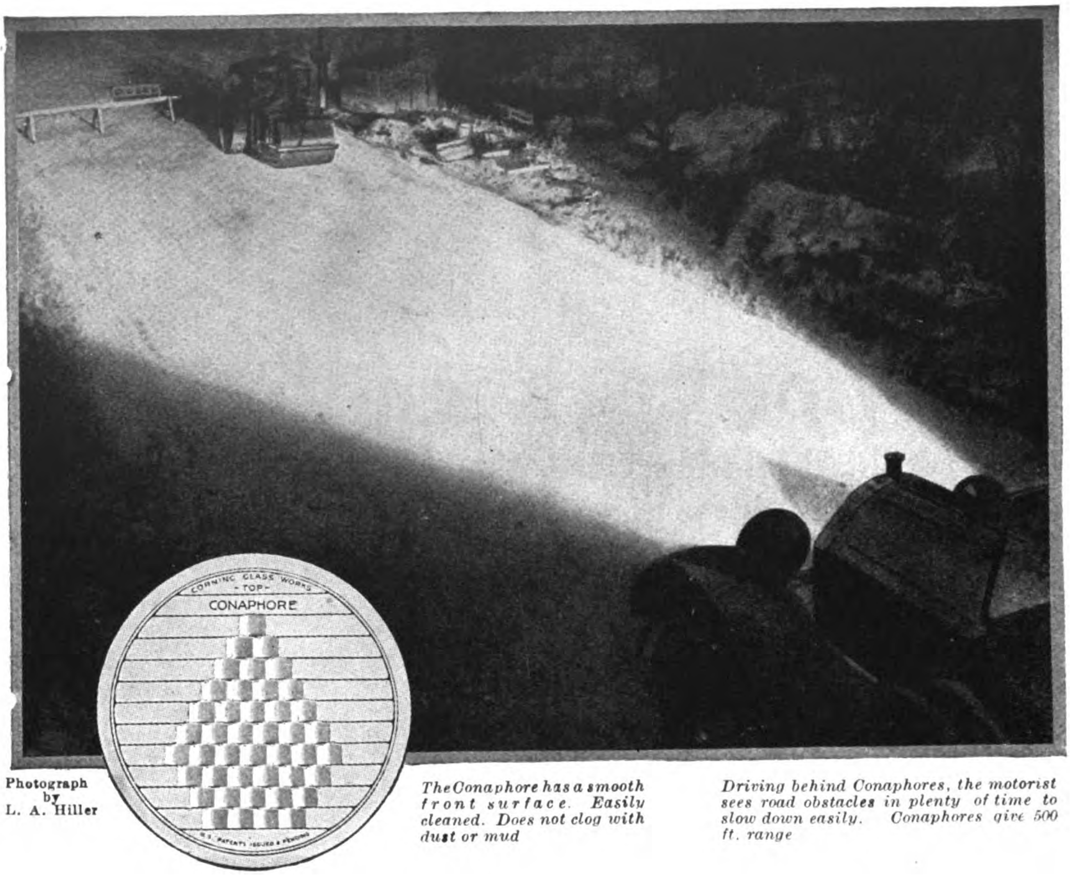
WE RE-GRIND AND FILL-IN SCORED CYLINDERS

TRUCK TRACTOR PLEASURE CAR MARINE

EXCELLENT WORK BY SKILLED OPERATORS

New Pistons Rings Bushings Pins

THE G. H. DYER CO., Cambridge, Mass.



Photograph
by
L. A. Hiller

The Conaphore has a smooth front surface. Easily cleaned. Does not clog with dust or mud

Driving behind Conaphores, the motorist sees road obstacles in plenty of time to slow down easily. Conaphores give 500 ft. range

How to make your lens business return real profits

IF you want to cash in on your headlight glass business, don't wait for state anti-glare laws or local ordinances to send motorists to your store.

Line up with the movement to make night driving safe. Show motorists how efficient headlighting works to their own advantage—how it makes for their own comfort and safety, as well as the safety of others.

When the motorists in your territory learn the tremendous advantages of efficient headlighting, your business in lenses is due to increase.

What Corning is doing

In national Conaphore advertising, Corning Glass Works is emphasizing the out-and-out necessity of efficient headlighting—not merely to comply with various laws, but to make night driving comfortable and safe for all concerned.

Tie up to this constructive, business-increasing policy by pushing Conaphores.

If you have ever driven behind Conaphores, you know how their 500 ft. range gives you plenty of light far down the road; how the cylinders fan ample light sidewise over the ditches and fences; how the Noviol beam shoots through fog or dust without dangerous "backglare."

If you have ever seen Noviol tinted headlights approaching, you know how the light is kept below the glare level; how the unique yellow-tint serves as a "**Signal** of Safety."

These are the advantages which mean comfort and safety on the highways for all motorists. These are the advantages which mean ready Conaphore sales and increased profits for you.

To tie up to our national advertising get our handsome Conaphore window transparency—it marks your store as a first-class accessory depot. Mailed free for the asking.

Retail Price List (per pair)	**Noviol Glass**	**Clear Glass**
5 to 6⅞ inches incl....	$2.40....	$1.60
7 to 8½ inches incl....	3.50....	2.50
8⅝ to 10 inches incl....	4.50....	3.00
10⅛ to 11½ inches incl....	6.00....	4.00

Prices 25 cents more per pair west of Rocky Mountains. Sizes vary by steps of ⅛-inch above 6½-inch size.

CONAPHORE SALES DIVISION
EDWARD A. CASSIDY CO., MGRS.
Madison Ave. and 40th Street, New York City

NO GLARE
RANGE 500 FT.

CONAPHORE

PIERCES FOG
AND DUST

CORNING GLASS WORKS—WORLD'S LARGEST MANUFACTURERS OF TECHNICAL GLASS

CHARLES C. GATES

-sell this fan-belt for the big car

Thousands of accessory dealers and garage men have doubled their fan-belt business this season.

You can do the same by utilizing "Standardization"—the scientific principle applied to fan-belts by Charles C. Gates who invented the "Vulco" process and the Gates Vulco Cord Belt.

Eight or nine Standardized sizes will fit every car in your territory.

Eighty-five per cent. of the total fan belt business outside of Ford sizes, has been going through the car manufacturer. You are not getting it; but the business rightly belongs to you and you can get it by selling The Standardized Fan-Belt.

This is the same Gates Vulco-Cord Belt that has swept the country off its feet. You are carrying it today for Fords; but why content yourself with only half the fan-belt business? There are scores of customers in your store every day that don't have Fords; but they all use fan-belts.

A single Gates Vulco-Cord Belt will fit as many as 12 different cars and models; and a stock of 8 or 9 "Standardized" sizes, every one of them moving briskly, will give you a 100% fan-belt business.

Write for our free booklet, and talk "Standardization" with your jobber, next time he calls, for if your fan-belt business has not doubled this year, you are not getting your share.

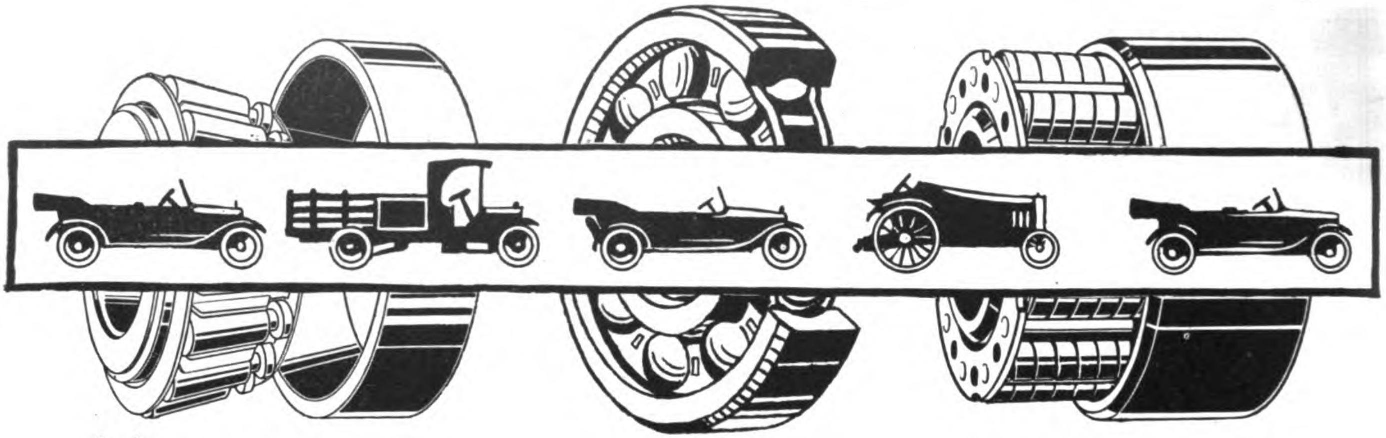
Emphatically, the Standardized Gates Vulco-Cord Belt is the fan-belt to tie to for 1919.

The Colorado Tire & Leather Co.

"World's Largest Makers of Fan Belts."

DENVER **1918**

BEARINGS



TIMKEN NEW DEPARTURE HYATT

for any make of motor truck, motor car or tractor ever manufactured

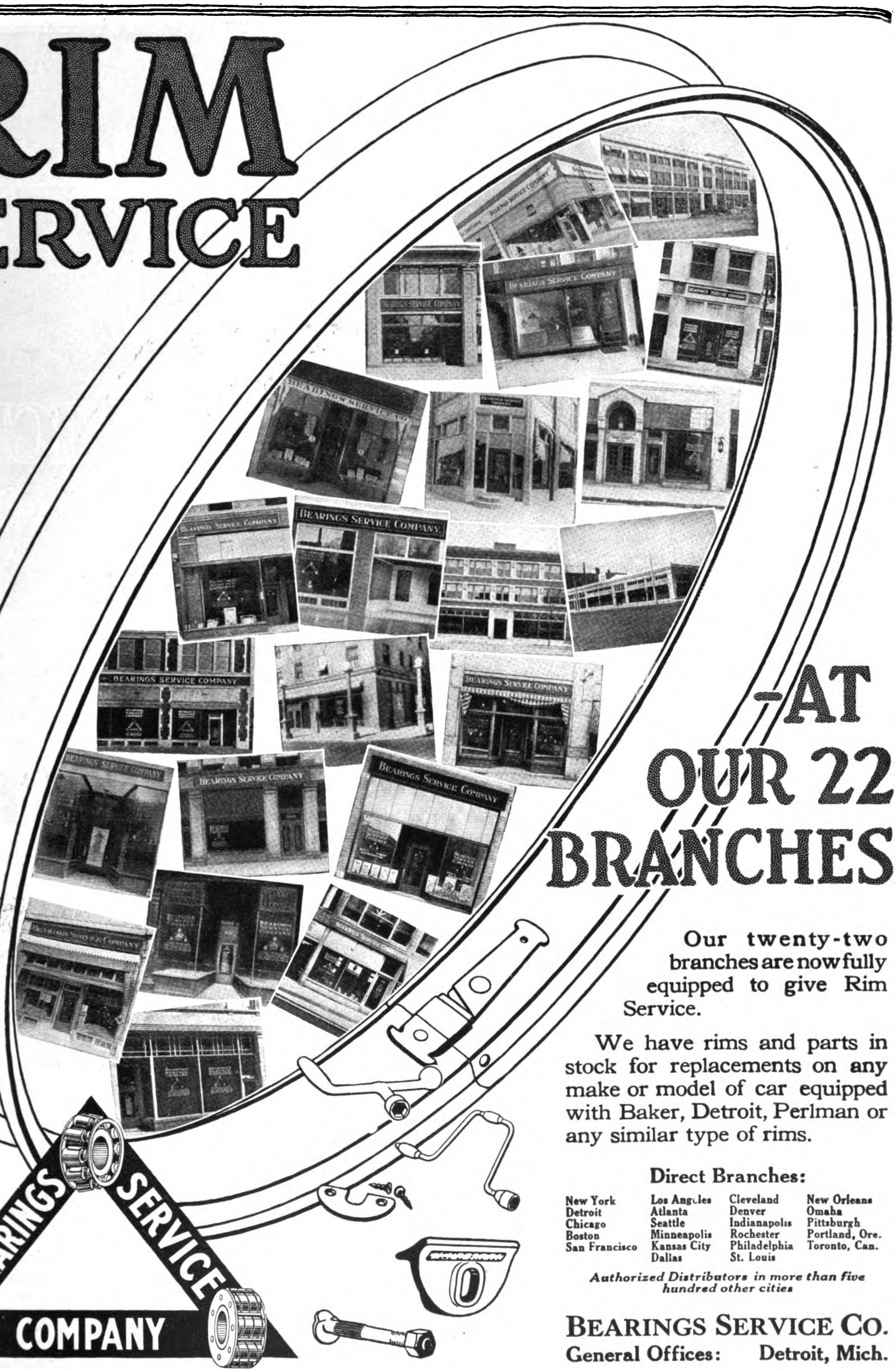
TWENTY-TWO BRANCHES

New York
Detroit
Chicago
Boston
San Francisco
Los Angeles
Atlanta
Seattle
Minneapolis
Kansas City
Dallas
Cleveland
Denver
Indianapolis
Rochester
Philadelphia
St. Louis
New Orleans
Omaha
Pittsburgh
Portland, Ore.
Toronto, Can.

Authorized Distributors in 500 Other Cities

BEARINGS SERVICE COMPANY

RIM SERVICE



-AT OUR 22 BRANCHES

Our twenty-two branches are now fully equipped to give Rim Service.

We have rims and parts in stock for replacements on any make or model of car equipped with Baker, Detroit, Perlman or any similar type of rims.

Direct Branches:

New York
Detroit
Chicago
Boston
San Francisco
Los Angeles
Atlanta
Seattle
Minneapolis
Kansas City
Dallas
Cleveland
Denver
Indianapolis
Rochester
Philadelphia
St. Louis
New Orleans
Omaha
Pittsburgh
Portland, Ore.
Toronto, Can.

Authorized Distributors in more than five hundred other cities

BEARINGS SERVICE COMPANY

BEARINGS SERVICE CO.
General Offices: Detroit, Mich.

Delco - REMY
Delco
REMY
UNITED MOTORS SERVICE
UNITED MOTORS SERVICE

UNITED MOTORS SERVICE Inc.

SERVICE DIVISION

OF

UNITED MOTORS CORPORATION

THE DAYTON ENGINEERING LABORATORIES CO.
DAYTON, OHIO
STARTING LIGHTING IGNITION

Delco

United Motors Service Inc. branches in the following cities giving service on Delco, Klaxon and Remy:

Kansas City
Chicago
Detroit
Los Angeles
San Francisco
New York

General Offices:
DETROIT, MICHIGAN

KLAXON

15 cities in which there are United Motors Service Inc. service stations for Remy

66 cities in which there are United Motors Service Inc. service stations for Klaxon

PRODUCTS OF CONSTANT PERFORMANCE
REMY

REMY

United Motors Service Inc. branches in the following cities at present rendering service on Remy only:

Denver
Minneapolis
Cleveland
Boston
Atlanta

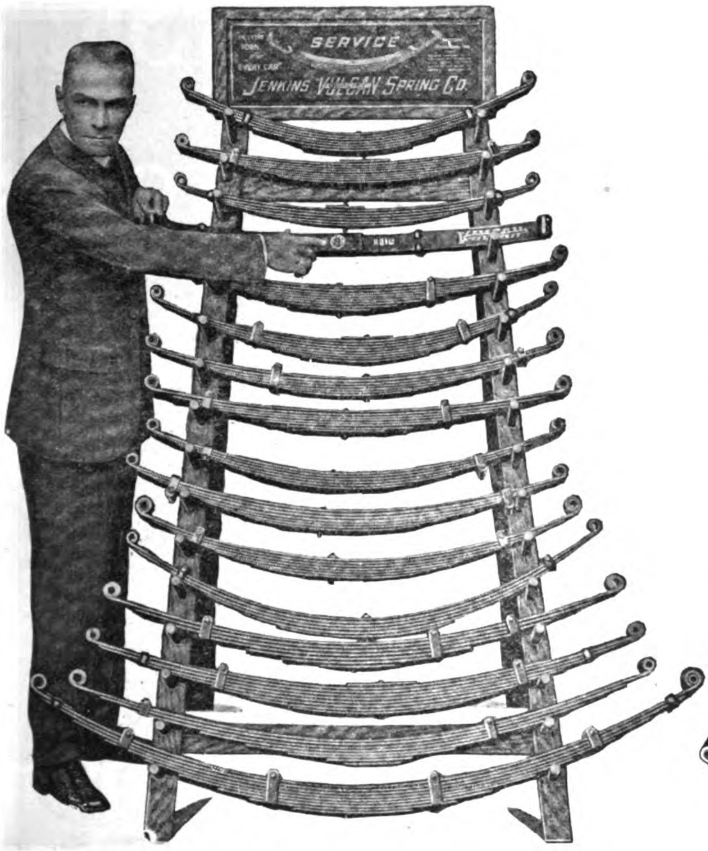
MOTORS SERVICE
TRADE MARK

Dealers and Garage Owners
Use the *VULCAN SERVICE* — for Profit

These are unusual times. Your books may show a heavy falling off of regular business. Don't worry! Think! Act! You must and *can* keep on doing business at a profit.

Business-Getting Service Helps Make Easy Sales Possible on

VULCAN
QUALITY
The Replacement Spring



Here is Real Profit with small investment.

This Display Rack is Free to you with your order for one dozen or more assorted Springs. Owners expect service, and know Vulcan Springs. When the car owner drives up and asks you to "put on Vulcan"—be prepared. Vulcan Springs move fast and give a big profit at small investment. Wake up to this opportunity.

Jenkins Vulcan Spring Co.

RICHMOND, INDIANA.

FACTORY BRANCHES:

St. Louis, Mo. 1402 Chestnut St.
Minneapolis, Minn. 1024 Hennepin Ave.
Dallas, Texas 209 So. Houston St.
Reading, Pa. 538 Franklin St.
Sumter, S. C. 29 Caldwell St.
Atlanta, Ga. 48 Auburn Ave.

The territory in which you live may be open for agency. Write today for our Spring Rack Proposition.

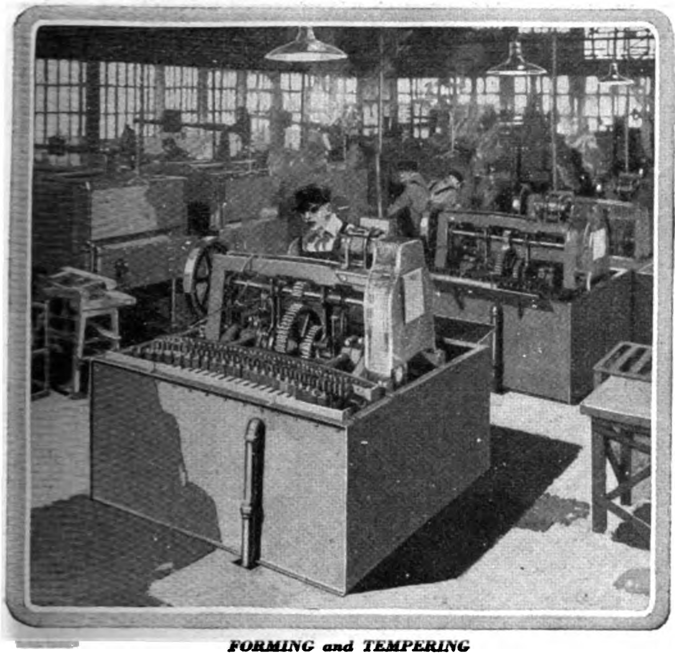
A Stock Record

We Can Ship
From Stock

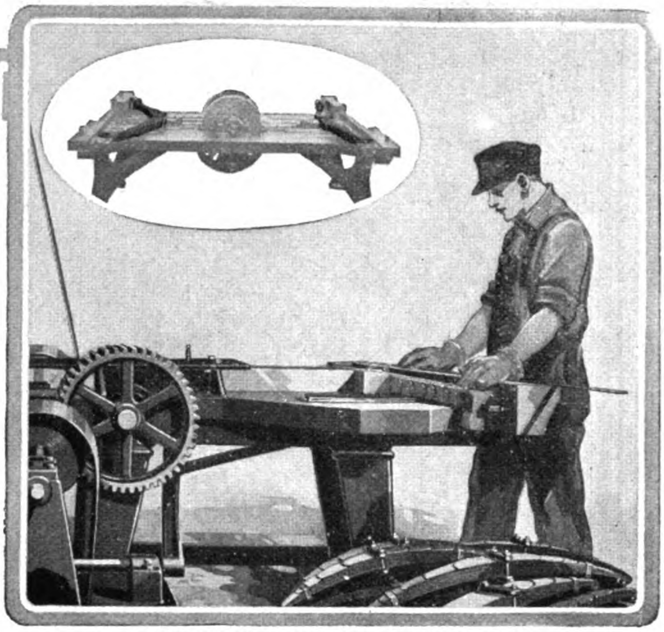
Cylinder Head Gaskets
for
87
Different
Car Models

Can We Serve You

The FITZGERALD MFG. Co.
TORRINGTON, CONN.



FORMING and TEMPERING



TESTING FOR ACCURACY and ENDURANCE

Resiliency·Endurance·Accuracy

A REPLACEMENT SPRING, to be worth its price must combine three things: Resiliency, Endurance and Accuracy. And of these three Accuracy is the most essential.

A spring must "fit like a glove" if it is to be resilient and durable. It must "fit like a glove" if it is to give satisfactory service.

Your business as a repair man depends on your ability to give satisfaction to customers. Our business depends on your success and patronage.

Knowing this, we have built our business on one policy: Satisfaction to Car Owners—Satisfaction and Profit to Dealers.

The Harvey Process is but a part of the Harvey Policy. Harvey Springs are scientifically made from the best spring steel obtainable. They are so carefully made and so thoroughly tested in design, material and workmanship that Resiliency, Endurance and Accuracy are absolutely assured.

If you are not already selling the Harvey Springs you should get in touch with us at once. It means satisfaction to your customers and profit to you.

There's a Harvey Jobber near you. Drop us a card and we will send you his name and our Spring Book containing specifications etc. of over 900 kinds of springs. Write today, you may need Harvey Help tomorrow.

Harvey Spring & Forging Co.

915 17th St. **Racine, Wis.**

CARBORUNDUM
VALVE GRINDING COMPOUND
MANUFACTURED BY
THE CARBORUNDUM CO. NIAGARA FALLS, N.Y., U.S.A.
CARBORUNDUM
VALVE
GRINDING
COMPOUND

The New
Improved Combination Can
for

Carborundum
Valve Grinding Compound

It wasn't possible to improve the contents so we went to work and improved the can. Now we have the new flat combination can—handy, serviceable, practical—a can that will appeal to the car owner and garage man alike. Two compartments side by side—one for the coarse, one for the fine compound—each holding two ounces of Carborundum Compound. This can can't leak—it's not like the double-end can where one end is always upside down. And this can will help you further your sales of

Carborundum Valve
Grinding Compound

The Compound that Cuts

Automobile, motor boat, motor cycle owners, garage and repair men are your customers for it. Do you know about the other Carborundum Products for the Garage?

THE CARBORUNDUM COMPANY
NIAGARA FALLS, N. Y.

NEW YORK CHICAGO BOSTON PHILADELPHIA CLEVELAND CINCINNATI PITTSBURGH
MILWAUKEE GRAND RAPIDS

Thousands of Truck Owners Use Them

Universal Motor Truck Accounting System

$5.00

Truck owners and truck dealers can secure these systems if they subscribe or are a subscriber to MOTOR TRUCK.

The system is simple, complete and good for one year. Perfected, almost self-operating and any one can start it. It is 100 per cent. efficient in any business. Any clerk can easily maintain the records for one or 100 vehicles in connection with their regular work.

This system shows at a glance and for any period of time every item entering into truck operating costs and earnings.

There are 350 day cards, pocket size, a durable carrier and an annual record book.

No samples or explanations are necessary and the system will fit in with any house bookkeeping.

Consider the cost and the value of the data. Start today and know what it costs you to operate your truck.

If you subscribe to MOTOR TRUCK send $5; otherwise the cost will be $6. (This includes an annual subscription to MOTOR TRUCK.)

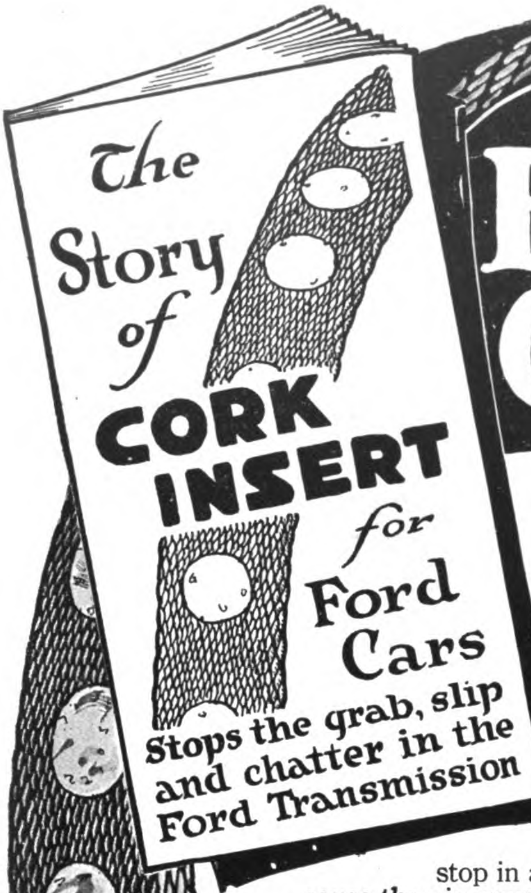
Each additional system $5 f. o. b. Pawtucket.

Address:

Record Department,

AUTOMOBILE JOURNAL PUBLISHING COMPANY

Pawtucket, Rhode Island.


The Story of CORK INSERT for Ford Cars
Stops the grab, slip and chatter in the Ford Transmission

Ford Owners

Let Us Mail You This New Booklet

It tells how you can have a wonderfully smooth working Ford simply by using Cork Insert Lining in the transmission. Buttons of cork are set into highest grade transmission fabric. The better friction afforded is wonderful. There is none of the usual lurching and jerking and racket when the Ford goes into low or reverse—but a steady, smooth, quiet get-away. When the brake is applied, the Ford **glides** to a quiet stop. It will stop in a far shorter space, without the grab and slip which cause the vigorous vibration and noisy chatter when ordinary linings are used. The booklet tells all about how and why

CORK INSERT

Transmission Lining for Fords

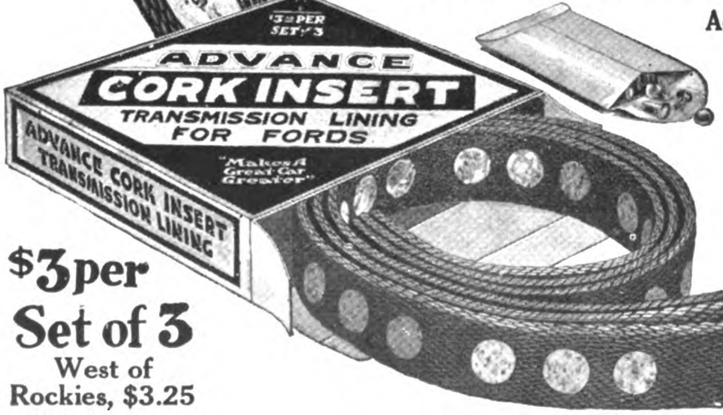
gives better and more economical service. Several interesting pages are devoted to "What Users Say" about Cork Insert. Here are a few quotations: "Have used Cork Insert Transmission Lining in my Ford for 10,000 miles and it is good as new." "Have been installing this lining for a year and have not had to reline a single set." "Not only lasts much longer, but also prevents the grabbing and chattering, prolonging the life of the car," "I have had Cork Insert Linings on my car for the last eight or nine thousand miles and like them very much."

Send the coupon and we'll mail you the booklet. You'll find it interesting and instructive. Send for the booklet even if you don't need the lining now. Tells about the **Cork Insert Fan Belt for Fords** — a belt that doesn't slip but keeps the Ford fan **fanning.** The best thing of the kind ever made. Also fully describes Cork Insert Brake Lining: Squeek-, oil- and slip-proof. Means a SAFE BRAKE with ECONOMY.

DEALERS: There's good stuff in this booklet for you. You'll sell more Cork Insert after reading, for you'll believe in it stronger than ever. Maybe you'd also like to have some of the books to give to your Ford owner customers. Send for a copy.

Send Coupon for Book

Advance Automobile Accessories Corporation
Dept. J3 1 56 East Randolph Street, Chicago


$3 PER SET OF 3
ADVANCE
CORK INSERT
TRANSMISSION LINING FOR FORDS
"Makes A Great Car Greater"
ADVANCE CORK INSERT TRANSMISSION LINING

$3 per Set of 3
West of Rockies, $3.25

Advance Automobile Accessories Corporation
Dept. J3-1 56 East Randolph Street, Chicago

I am the owner of a........................car, model..................
Kindly send me copy of your booklet, "The Story of Cork Insert for Ford Cars."

Name ....

R. F. D. or Street No..

P. O...State..........................

This line is for use of dealers who send for booklet: Business..

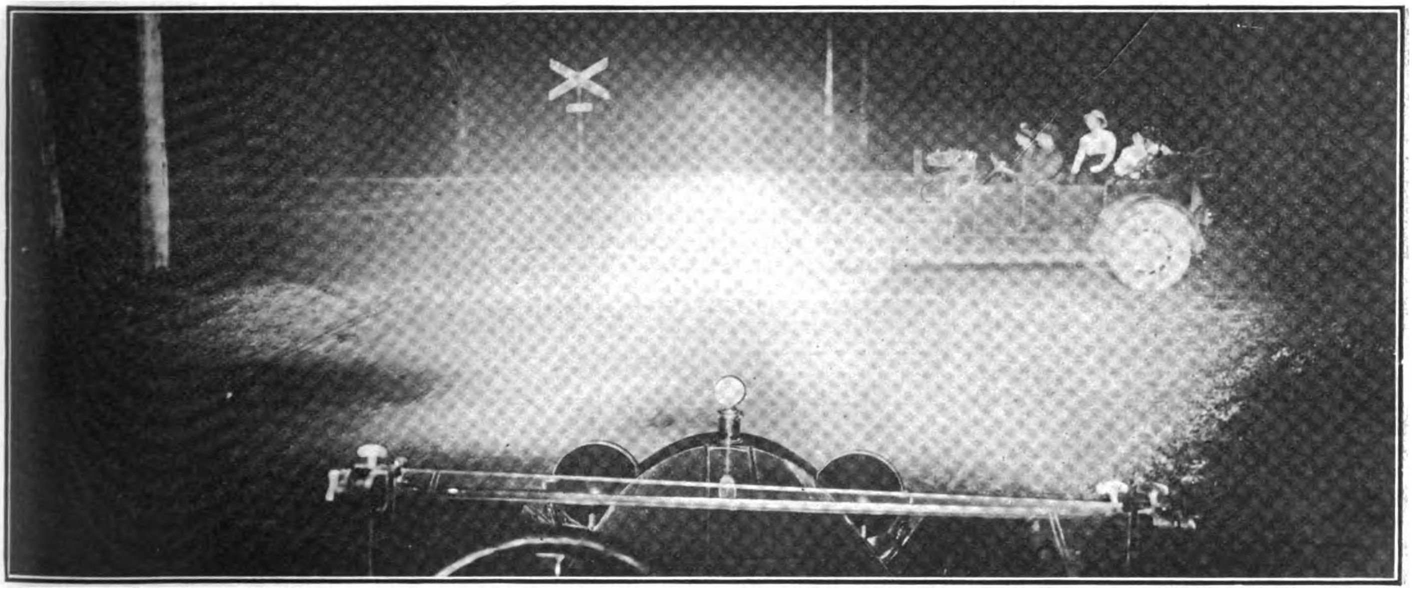
(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., SEPTEMBER, 1918 No. 5

Big Market For Non-Glare Devices

States Take Action to Suppress The Glaring Headlight Nuisance—Plain Lenses Will Soon Be Barred From Roads in New York, Massachusetts, Connecticut and Other States.



Photographic Evidence of the Danger of Glaring Headlights, Driver in Background Is Blinded to View of Railroad Crossing and Gates.

THE owner of an automobile with plain head lamps and lenses will soon find his scope of operations very limited and his trips quite expensive, as when driving after dark he will be a violator of the law in most every eastern state.

It is becoming apparent to the highway officials and heads of motor car departments of the various states that in the headlight problem lies one of the principal causes of the increasing number of motor car accidents on the highways and they are taking action to eliminate this source of accident by having laws enacted to regulate headlights and are enforcing them.

Every driver of a car must admit of the great danger attending the use of the plain lens in head lamps, for in fact the very complaints of such car operators have instigated the present widespread campaign for head lamp regulation, which has met such popular approval that it will soon bear fruit to an extent that the unregulated headlight will not be tolerated in any state.

Laws to Compel Reform.

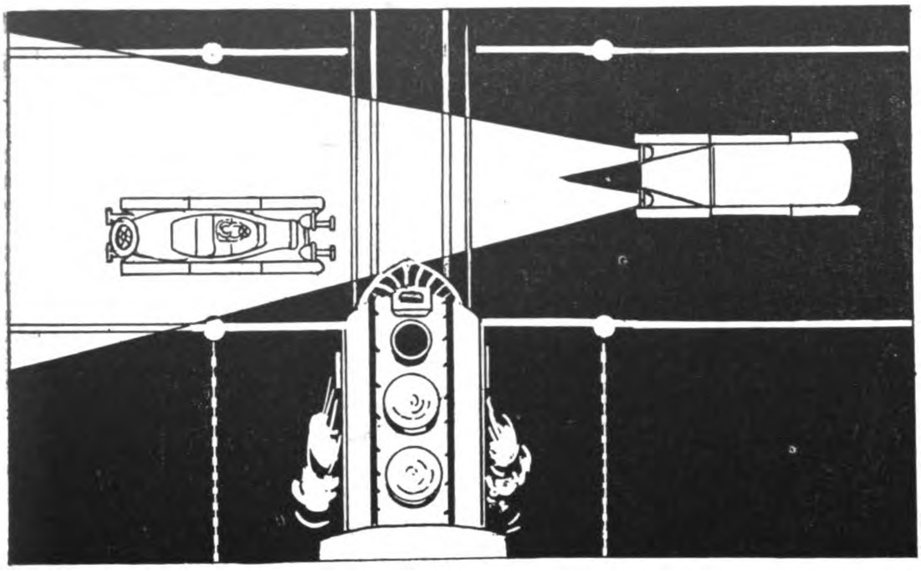
Like many situations calling for a public reform conditions bearing upon it have completely reversed themselves, as where formerly there was only a half-hearted demand that the glaring headlight be done away with, there now seems to be a general demand representing the consensus of opinion that no cars be allowed on the road with lights that can blind another driver or pedestrian and it is now taking form in laws that will compel the proper lighting equipment for every car.

Some states have not as yet incorporated in their automobile law any regulatory measures relative to headlights, and the question of whether or not a motorist is to be a dangerous factor on the road is left to his own discretion. He is supposed to exercise the courtesy of not offending other motorists or endangering their lives, but just how he can do this without the proper lighting equipment is not made plain.

However, motorists of other states are taking the precaution of not letting these motorists become a nuisance on their highways and unless they comply with the laws of the more progressive states they will be obliged to restrict their trips within the confines of their own state boundaries.

Responsibility of Officials.

Practically every state has waived its rights of taxing motorists from other-



At an Ungated Railway Crossing the Blinded Driver Is Unable to See the Dim Lights of the Approaching Locomotive.

states for periods of two weeks to a month and have also shown visiting parties great leniency in the matter of observing the other automobile laws, but it has lately become apparent to those in charge of enforcing the laws that they have no right to permit motorists with dangerous headlights to use their highways to the detriment and danger of motorists who have sought protection against accident in securing the passage of laws to compel the use of head lamps with proper lighting capacity and means of directing the rays in their proper sphere.

Investigation of the matter which has only lately begun on an extensive and thorough scale will probably be productive of many beneficial developments affecting motoring and car owners. In states where owners are compelled to have properly regulated headlights they will certainly be entitled to a lower rate for collision and accident insurance and the careful study of this lighting problem will probably result in the development of a more perfect type of lense or lighting equipment if such a thing is possible, many lenses at present on the market meeting all the requirements of the laws regulating lights while retaining their maximum efficiency for driving purposes.

Massachusetts Takes Action.

In Massachusetts the authorities have again taken cognizance of the lighting problem to the alarming increase in the number of highway accidents, many of which have been directly attributable to improperly regulated automobile head lamps.

For this reason the Massachusetts State Highway Commission has adopted a new rule owing to the numerous accidents and narrow escapes reported from collisions by machines traveling in different directions at night in the suburban and rural sections. This rule is as follows:

"Whenever there is not sufficient light within the limits of the highway location to make all persons, vehicles or substantial objects clearly visible within said limits for a distance of at least 150 feet, the white lights or lights of yellow or amber tint, which a motor vehicle is required to display by section 7, chapter 534, acts of 1909, as amended shall, when said vehicle is in motion throw sufficient light ahead to show any person, vehicle or substantial object upon the roadway straight ahead of the motor vehicle for a distance of at least 150 feet.

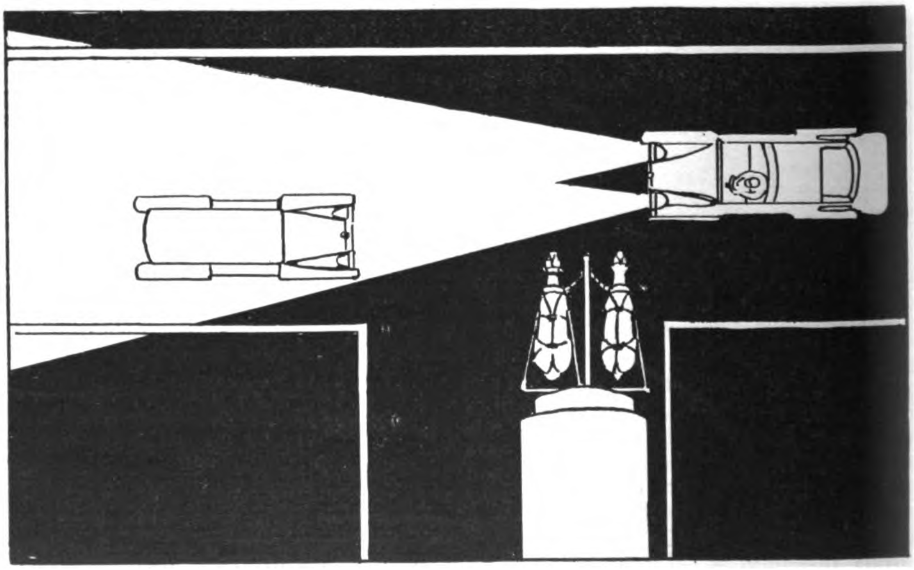
"Any light thrown directly ahead or sidewise shall be so arranged that no dazzling rays from it or from any reflector shall be at any time more than 3½ feet above the ground on a level road at a distance of 50 feet or more ahead of such vehicle, and said light shall be sufficient to enable the operator of the motor vehicle to see any person, vehicle or substantial object upon the roadway or side thereof for 10 feet on each side of the motor vehicle 10 feet ahead of such vehicle.

Col. Sohier of the Massachusetts State Highway Commission recently stated that the police of the various towns and cities were now actively cooperating with the commission in suppressing the illegal use of headlights and that over 80 prosecutions had already been made in the vicinity of Springfield, Mass., alone. With over 175,000 cars registered in that state it is naturally a difficult task to impress upon every operator the necessity of observing this law, and particularly so as in the past the lax attitude on the part of the police toward this regulation has conveyed the impression generally that the headlight regulations were not looked upon as requiring strict observance. To overcome this belief on the part of motorists and to quickly bring them to a realization of the dangerous practise of driving about the country with glaring lamps, Col. Sohier has suggested that people make complaints to the commission, give the number of the cars of offending operators and they will be summonsed.

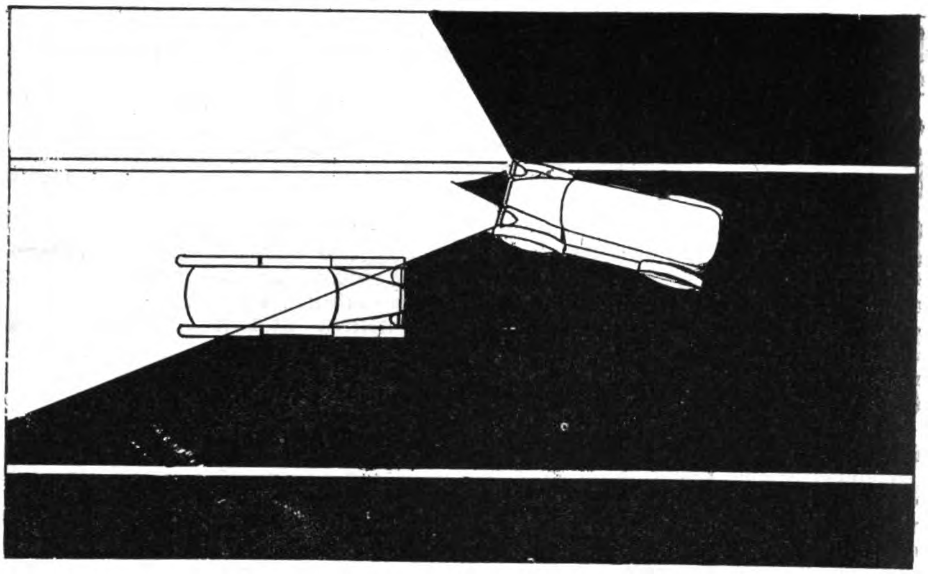
Rhode Island in Line.

The State Board of Public Roads in Rhode Island, which has the power to make such regulations governing motor car headlights as is deemed necessary without legislative action, is now considering the adoption of some rule regarding the use of head lamps with the object of eliminating the nuisance of glaring headlights. Nothing definite has been decided by the board as yet, but it is understood that any action taken will conform closely to that already in force in Connecticut and Massachusetts, as Rhode Island is hemmed in on both sides by those states and its motorists use their roads extensively, which fact will make it necessary to meet the conditions imposed by the bordering states.

In view of the improved driving conditions that will obtain when the regulated headlight is in use, the trouble or expense incurred by the motorist in effecting it is negligible, as there are many devices already on the market which meet with the provisions of the law and which do not call for a great outlay of money or time or expense for installation.



The Driver, Blinded by the Approaching Lights, Cannot See the Team of Horses Crossing His Path.



A Driver Blinded by Glaring Lights Instinctively Crowds Toward the Light, Forcing the Oncoming Machine Into the Ditch.

Action in Pennsylvania.

A similar situation has existed in Pennsylvania. The authorities have been empowered with a law to suppress the glaring headlight nuisance, but have been rather lax in making prosecutions until recently, when the superintendent of police of Pittsburgh started a crusade against automobilists with improper headlight equipment and the campaign will be continued, it is understood, until motorists thoroughly understand that the law regulating the limitations of their lights must be observed.

New York Makes Rigid Test.

In New York state the authorities have made extensive tests of head lamps and devices and will soon issue a list of the types approved. The tests under which lights are to be approved in that state are very exhaustive and exact, the conditions to be fulfilled to comply with the intent of the new law being specified for the purposes of testing as follows:

1. Any pair of head lamps under the conditions of use must cast a beam which when measured on a level surface at a distance of 200 feet directly in front of the car and at some point between the level surface and a point 42 inches above this surface, is not less than 1200 apparent candlepower.

2. Any pair of head lamps under the conditions of use shall cast a beam which, when measured at a distance of 100 feet directly in front of the car, and at a height of 60 inches above the level surface, does not exceed 2400 apparent candlepower, nor shall this value be exceeded at a greater height than 60 inches.

3. Any pair of head lamps under the conditions of use shall cast a beam which, when measured at a distance of 100 feet ahead of the car, and seven feet or more to the left of the axis of the same, and at a height 60 inches or more above the level surface, does not exceed 800 apparent candlepower.

Laboratory Test Required.

In order to determine whether any particular device conforms to these requirements, it shall be subjected to laboratory tests according to the following specifications:

Two pairs of samples of the device submitted shall be subjected to test. In the case of front glasses the samples shall be of 9¼-inch diameter.

Reflector Requirements.

The reflectors used in connection with the laboratory tests shall be of standard high grade manufacture of 1.25-inch focal length, with clean and highly polished surfaces, and as nearly truly paraboloidal in form as practicable, and as approved for this purpose by the national bureau of standards.

The manufacturer of the device shall be given due notice of the date and place of test. Manufacturers' representatives present at the test shall be privileged to adjust their devices in any way which represents an ordinary and legitimate adjustment, including tilting the lamps or reflectors, which can be carried out by purchasers of the device, or such adjustment may be made by the laboratory expert acting on the instructions of the manufacturer. The character of the adjustment so made shall be carefully noted and stated in the report as manufacturer's adjustment.

How Tests Are Made.

The tests shall be as follows:

Test 1. Four-point test of pairs of samples.

A pair of testing reflectors, mounted similarly to the head lamps on a car, shall be set up in a dark room at a distance of not less than 60 feet nor more than 100 feet from a vertical white screen. If a testing distance of 100 feet is taken the reflectors shall be set 28 inches apart from center to center and if a shorter testing distance is taken the distance between reflectors shall be proportionately reduced. The axes of the lamps shall be parallel and horizontal, or as tilted in accordance with manufacturer's adjustment. The intensity of the combined beams shall then be measured with each pair of samples in turn, with the reflectors fitted with a pair of each of the following types of incandescent lamps, in turn:

(1) Vacuum type, 6-8 volts, 17 mscp., G-12 bulb.

(2) Gas filled type, 6-8 volts, 20 mscp., G-12 bulb.

The lamps shall be adjusted to give their rated candlepower. Measurements shall be made at the following points at the surface of the screen:

A. In the median vertical plane parallel to the lamp axes, on a level with the lamps.

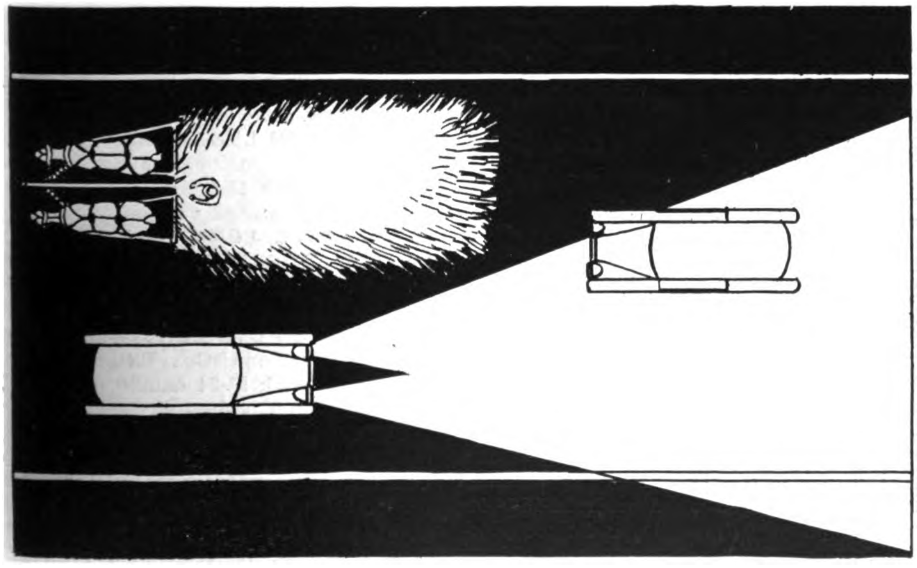
B. In the same plane one degree of arc below the level of the lamps.

C. In the same plane one degree of arc above the level of the lamps.

D. Four degrees of arc to the left of this plane and one degree of arc above the level.

Specifications of Samples.

In an acceptable device both pairs of samples shall conform to the following specifications for observed apparent candlepower:



One of the Greatest Dangers from Headlight Glare Is of Collision with Slow Moving Vehicles Ahead.

Points A and B. At at least one of these points the apparent candlepower shall not be less than 1200.

Point C. The apparent candlepower shall not exceed 2400.

Point D. The apparent candlepower shall not exceed 800.

Provided, however, that if the test indicates that a device which is unacceptable with either of the test lamps will come within the specifications with lamps of another candlepower or of the other type, the device may be passed with corresponding limitations as to the incandescent lamps to be used in connection with it.

Test 2. Complete test of single sample.

A single sample taken as an average representative of the device as manufactured, shall be submitted to a complete test with a vacuum incandescent lamp of 17 candlepower 6-8 volt rating in a G-12 bulb. This test shall show its beam characteristics by actual measurements made according to recognized and exact methods.

One pair of the samples submitted shall be retained by the testing laboratory for purpose of future reference and as samples of construction, and the other pair shall be returned to the office of the secretary of state.

Report on Result of Test.

The report of the tests shall be rendered in duplicate to the secretary of state, and shall be signed or initialed not only by the expert making the test, but also by a person representing the more general responsibility of the institution making the test. It shall include a statement by the testing laboratory as to whether the device has passed or has not passed the specifications as herein given; also, a statement as to the maximum or minimum candlepower to be used with the same and as to the other conditions necessary in the operation of the device in such a way that it will comply with the requirements of this specification.

Connecticut's New Law.

Connecticut has had a new headlight law for some time, but did not strictly enforce its provision on visiting motorists until recently, when notices were sent to the motor car or highway department heads of the various surrounding states of the intention of the state commissioner to enforce the law on all motorists using the highways of Connecticut.

The motorist to escape prosecution in Connecticut must see that the headlights of his car meet the following provisions:

"Give 150 feet of driving light. Throw no dazzling rays or beams of reflected light ahead of the car higher than 42 inches at a point 75 feet ahead of the vehicle. Give light 10 feet to each side at a point 10 feet ahead of the car."

The pamphlet which was sent out by the Connecticut Commissioner of Motor Vehicles contained the name of about 25 kinds of head lamp reflectors, lenses and devices which are approved by the authorities of that state.

Following is a list of approved devices issued by the department of motor vehicles of Connecticut:

BARTELSTONE LENSES—Made by Bartelstone Co., Inc., 1170 Broadway, New York, when used with 21-24-30-36-40 candle power bulb at its indicated voltage.

BERMAC REFLECTOR—Made by W. H. Berry, 31 State street, Boston, Mass., when used with a 24 candle power bulb at its indicated voltage.

CORNING CLEAR LENS—Made by Corning Glass Works, Corning, N. Y., when used with a 21 candle power bulb at its indicated voltage.

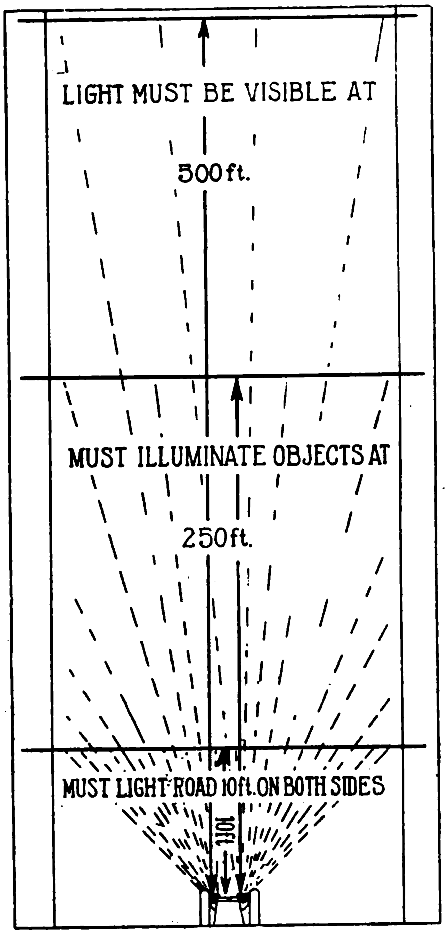

LIGHT MUST BE VISIBLE AT
500 ft.
MUST ILLUMINATE OBJECTS AT
250 ft.
MUST LIGHT ROAD 10 ft. ON BOTH SIDES
10 ft.

Diagram of Light Projections. Meeting Maximum Limitations of Every State.

CORNING NOVIOL LENS—Made by Corning Glass Works, Corning, N. Y., when used with a 21 candle power bulb at its indicated voltage.

CONTROLITE LENS—Made by Super-Lighting Co., 1834 Broadway, New York, when used with a 21 candle power bulb at its indicated voltage.

FRACTOR LENS—Made by Crew Levick Co., Land Title Building, Philadelphia, when used with 15-18-24-36 candle power bulb at its indicated voltage.

HOLOPHANE LENS—Made by Holophane Glass Co., 340 Madison avenue, New York, when used with 12-15-18-21 candle power bulb at its indicated voltage.

HOTCHKISS LENS—Made by Hotchkiss Co., Torrington, Conn., when used with 40 candle power bulb at its indicated voltage.

MASK AND LIGHT CONCENTRATION—Made by Hamilton & De Loss, 745 Main street, Bridgeport, when used with 18 candle power bulb at its indicated voltage.

LEGALITE LENS—Made by the Legalite Corporation, Boston, Mass., when used with 15-18-24-36 candle power bulb at its indicated voltage.

MORE-LIGHT LENS (Amber)—Made by L. E. Smith Glass Co., Mt. Pleasant, Pa., when used with 21 candle power bulb at its indicated voltage.

MORE-LIGHT LENS (Clear)—Made by L. E. Smith Glass Co., Mt. Pleasant, Pa., when used with a 21 candle power bulb at its indicated voltage.

OFFSET REFLECTOR—Made by C. T. Sutterley & Co., 237 Hamilton street, Philadelphia, when used with a 21 candle power bulb at its indicated voltage.

OSGOOD LENS—Made by Osgood Lens and Supply Co., 1241 S. Michigan avenue, Chicago, when used with a 24 candle power bulb at its indicated voltage.

QUEEN CUT GLASS—Made by Flemington Cut Glass Co., Flemington, N. J., when used with a 15 candle power bulb at its indicated voltage.

REFLECTOR—Made by the Rand Reflector Co., Haverhill, Mass., when used with a 21 candle power bulb at its indicated voltage.

SAFERLITE LENS—Made by the Saferlite Co., 220 Fifth avenue, New York, when used with a 24 candle power bulb at its indicated voltage.

VICTORIA SIMPLEX—Made by the Victoria Manufacturing Co., 12-16 John street, New York, when used with 15-18-21-24 candle power bulb at its indicated voltage.

WARNER LENS—Made by the Warner Lens Co., 914 S. Michigan avenue, Chicago, when used with 15-21 candle power bulb at its indicated voltage.

MACBETH LENS—Made by the MacBeth-Evans Glass Co., Boston, Mass., when used with 15-18-21-24 candle power bulb at its indicated voltage.

McKEE LENS—Made by the McKee Glass Co., Jeanette, Pa., when used with 15-18-21-24 candle power bulb at its indicated voltage.

JEFFERSON LENS—Made by the Jefferson Glass Co., Fallonsbee, W. Va., when used with 15-18-21-24 candle power bulb at its indicated voltage.

PRIMOLITE LENS—Made by Barry Co., Ltd., 122 S. Michigan avenue, Chicago, when used with 15-18-21-24 candle power bulb at its indicated voltage.

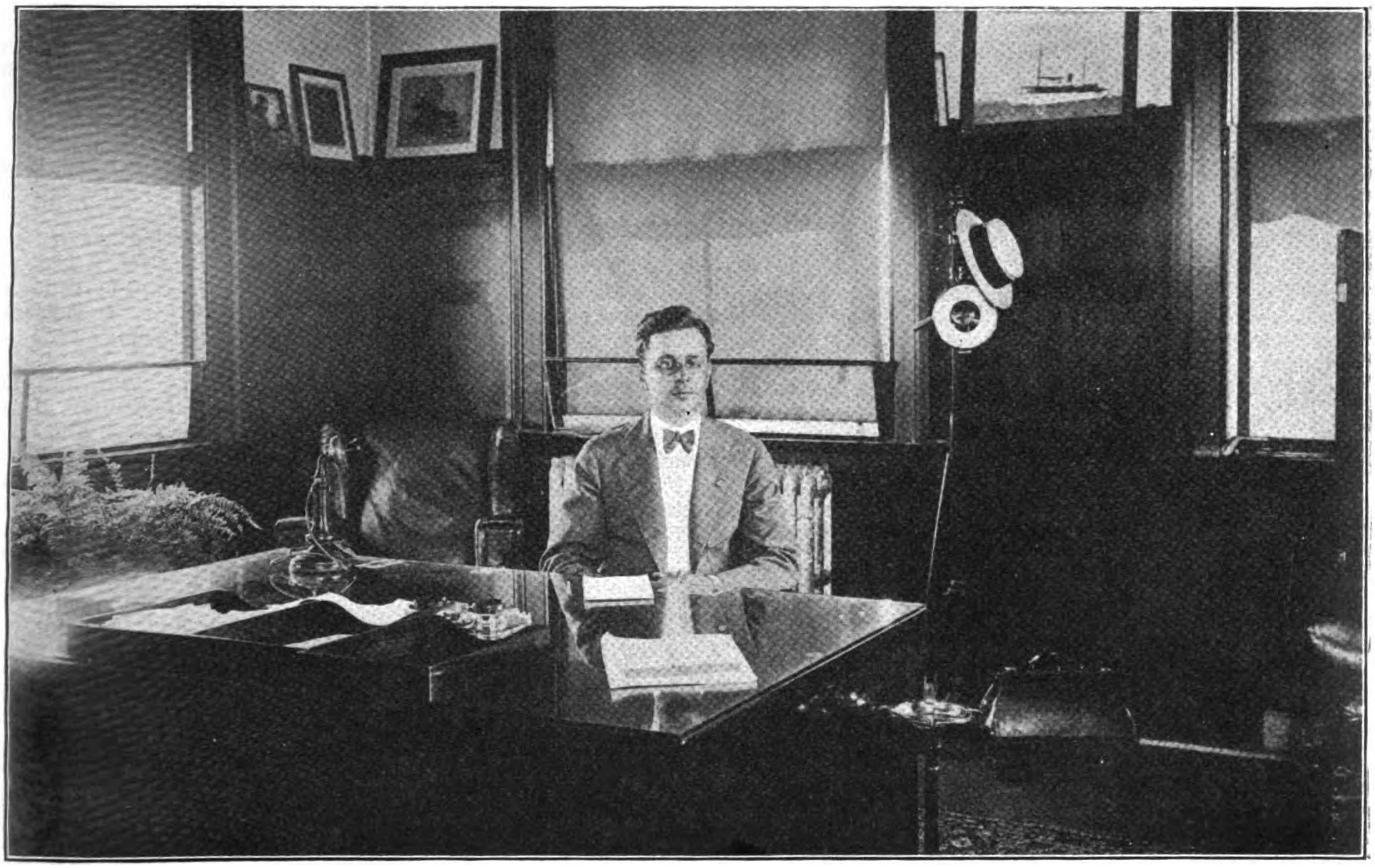
NOGLARE AUTO LENS—Made by Noglare Auto Lens Co., Pittsburgh, Pa., when used with 21-24 candle power bulb at its indicated voltage.

STEWART LENS—Made by the Stewart-Warner Speedometer Corporation, Chicago, when used with 15-18-21-24 candle power bulb at its indicated voltage.

SHALER LENS—Made by the Shaler Lens Co., when used with 15-18-21-24 candle power bulb at its indicated voltage.

Remarkable Career of Dutee Wilcox Flint the Oldest Ford Car Dealer in Point of Service

His Achievements, Organization and Facilities for Serving Ford Owners—Completely Equipped Service Station in Providence—Twenty Branch Stores in Rhode Island and Connecticut—New England Distributor Fordson Tractor—Sells More Than 3,000,000 Gallons of Gasoline Annually



Dutee Wilcox Flint in His Private Office.

"WIN the war and win it fast. Fitting one's convenience to his regular business in order to avoid a patriotic, moral duty is of secondary consideration as compared with winning the war." These pithy statements make up the war slogan of Dutee Wilcox Flint of Providence, R. I., the oldest Ford dealer in point of service and the largest individual distributor of Ford cars.

The writer had camped on the trail of this extremely busy dealer for almost a week in an endeavor to find a suitable opportunity for an interview and thus be able to gain an impression of the personality of the man who has built up one of the largest motor car distributing and service organizations in America. While superintending the work of photographing his large service station on Allens avenue, Providence, I saw him daily enter into and go out of his private office. Great pressure of business affairs was impelling him toward some definite goal, and no one could have possibly diverted his attention for even a minute from the daily schedule of work he had set out to accomplish. He certainly seemed elusive—not designedly so, but as a necessity, as he is not prone to show even the attitude of evasion. He is fearless, full of initiative, and would always be a leader of men in any line of activity. At last my determination and patience to see the chief was rewarded. He appeared to have forgotten the regular rest period, as he was still forging ahead when others had stopped for lunch. His courteous general manager, Benjamin Peckham, saw that the "coast was clear," and projected me into the vortex of this busy man's affairs, and his relaxation of regular effort was short, for he could allow me only a few minutes of his time, but made special arrangements to give me an hour the next day. At the interview he instantly impressed me as 100 per cent. American, 100 per cent. as a motor car dealer and a creator of efficient motor car service, 100 per cent. all around business man and cheerfully good fellow.

Supplementing the war slogan quoted

above, Mr. Flint continued with the following short, snappy declarations delivered like the action of a rapid fire machine gun:

"The sooner dealers realize that the most important business before them is to do everything they can to help win the war, just so much sooner will it be satisfactorily finished and the automobile business will be back into its normal condition. I am bending all my energy and resources toward conservation and contributing to the sinews of war, and am sacrificing and adjusting my business as best I can to overcome the disintegration of my former efficient organization, in order to release manpower for the war. This may naturally reduce the productiveness of my service station, but, fortunately, at this time, only in so far as the broader distribution of passenger cars is concerned.

"It will not help dealers or those engaged in other lines of business to complain of the unsettled conditions brought on by the war. It is up to all of us to pull off our coats, roll up our sleeves and pitch in with an earnest good will to apply our energies wherever they will do the most good toward winning the war. When you have an obnoxious job on your hands, the more quickly you clean it up, just so soon will the atmosphere of discontent and uncertainty be clarified. We must work hard and fast to remove the hated barrier to civilization, peace, contentment and legitimate business—and our whole duty now is to help win the war."

A Pioneer Ford Dealer.

The Ford agency of Dutee Wilcox Flint was organized in the fall of 1904, when Henry Ford was building and marketing a two-cylinder car. Then production and sales were limited to the minimum. If a dealer sold 50 cars a year he was indeed considered prosperous, and Mr. Flint did not average that number of sales annually. Then people had to be educated to the utility of a car and how to carefully operate one. As a pioneer, Mr. Flint had his full share of this promotion and sales work. He is now 35 years of age and was only 21 when he embarked upon the tempestuous sea of the early days of a motor-car agency.

Mr. Flint was persistent and held stedfastly to his Ford agency, backed up with all the ardor and optimism of youth. It can be said of Mr. Flint that he always had implicit faith in the genius and ability of the man out in Detroit who was destined to become the big man of the industry. He knew in advance of the great manufacturer's plans to build a light-weight car that would be easy and economical on tires as well as economical in fuel and oil consumption, with minimum mechanical upkeep expense. His faith in Mr. Ford's promise to produce the "Universal" car was not misplaced, as his rapid and wonderful success as a Ford distributor has proven.

In the winter of 1905 Mr. Ford brought out his model K six-cylinder car, and Mr. Flint sold 20 of this model in 1906 and 23 in 1907. In the fall of 1906 Mr. Ford produced his first model of the light-weight, medium-length wheelbase Ford, then designated as the model N. The touring car sold for $950 and the roadster for $900, f. o. b. Detroit, and it was then considered the "best buy" at anywhere near its price. During the season of 1907 Mr. Flint sold 300 of the model N. Each succeeding year his sales were increased by leaps and bounds, and the sales for the most prosperous year, just preceding the entry of the United States into the war, exceeded 10,000 passenger and commercial cars.

Territory Controlled Has 1,250,000 Population.

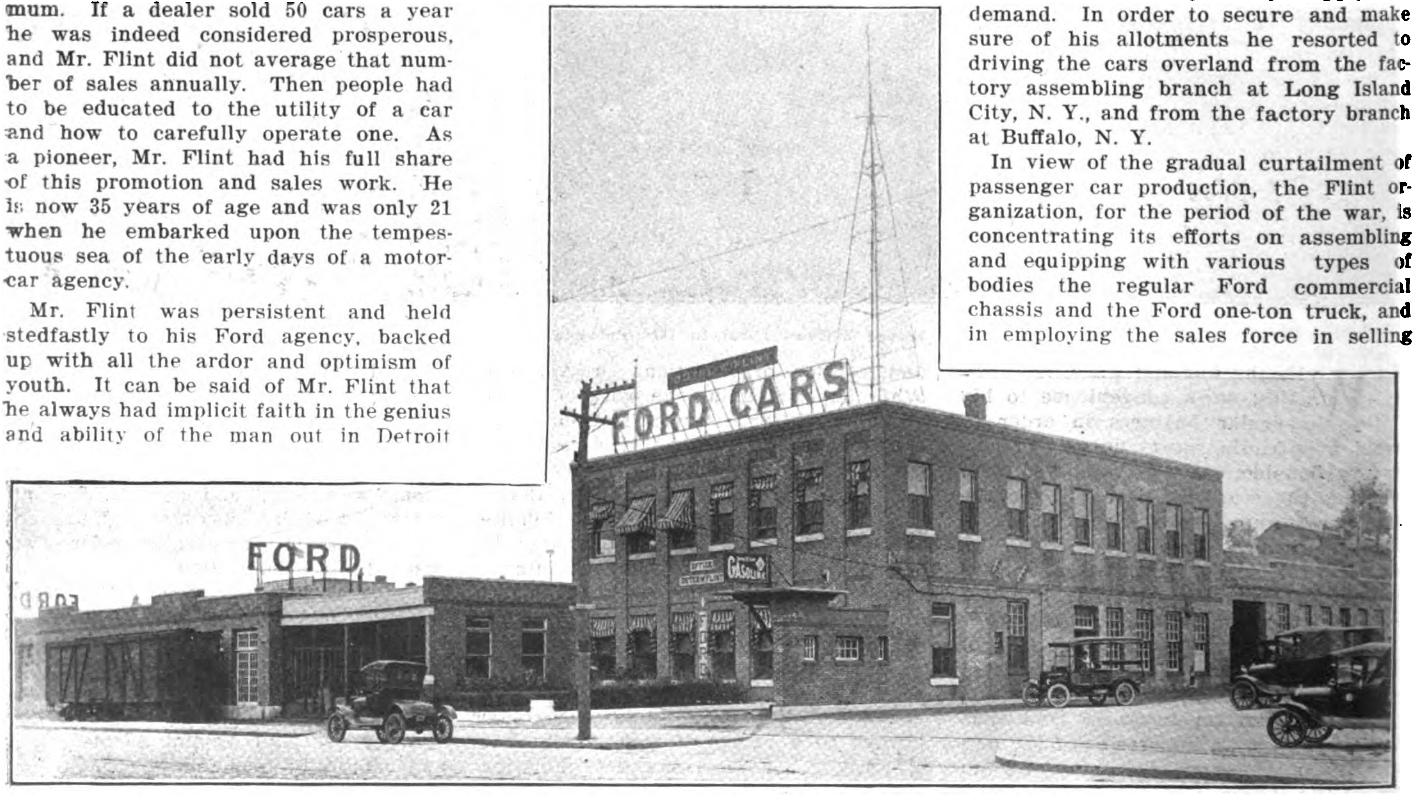
Dutee Wilcox Flint controls, as his selling territory, the State of Rhode Island and Fairfield and New Haven counties in Connecticut. He operates 20 stores in this territory, with service stations in all of them. Aside from the main assembling plant, service station and general offices located on Allens avenue in South Providence, the location of his sales stores in Rhode Island are: Main salesroom, 172 Washington street, Providence; Pawtucket, Newport, Westerly, Woonsocket, Arctic, Wakefield, Warren and Bristol. Salesrooms in Connecticut are located at Bridgeport, New Haven, Waterbury, Stamford, Greenwich, Meriden, Danbury, South Norwalk, Wallingford and Derby. This territory has at least 1,250,000 population and it is one of the richest manufacturing sections in America, with thousands of miles of good roads to encourage the extensive use of motor vehicles for business and pleasure.

In connection with the 20 stores, a line of standardized accessories and supplies is carried in each, for the convenience of Ford owners, and only such accessories are carried in stock which are strictly applicable to the Ford car. Distributed among the 20 stores are spare parts valued at between $150,000 and $200,000. At the service station in Providence $40,000 worth of spare parts are carried as standard stock and at the Bridgeport, Conn., service station a like amount of spare parts are carried. Between 500 and 600 bodies, mostly for commercial cars, are a part of the regular stock supply. In fact, the service plant in Providence is operated on the basis of a factory, so complete is the equipment and production facilities, and a number of cars could be built from the spare parts and bodies on hand, if occasion should demand.

Concentrating on Service Work and Commercial Cars.

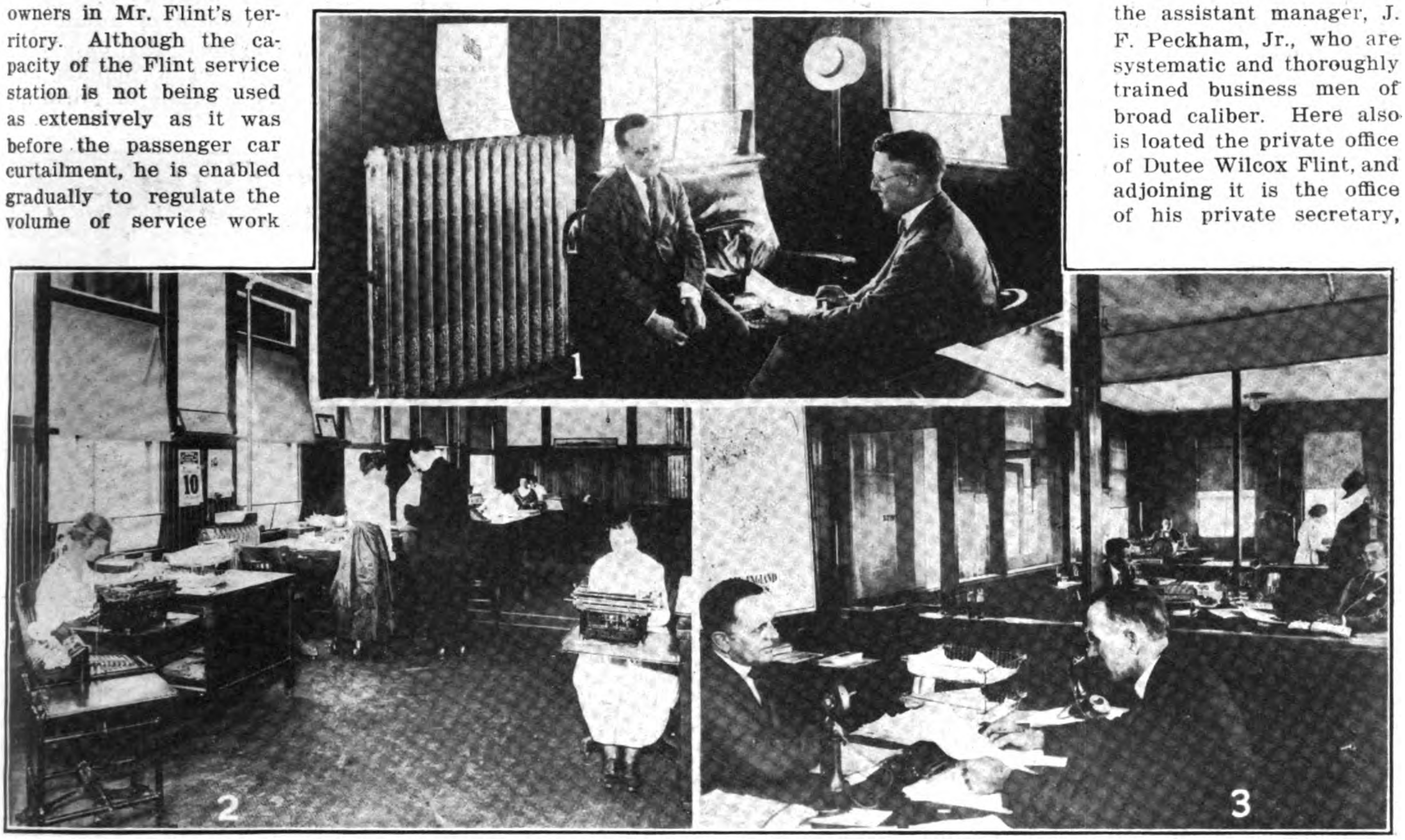
Due to the Ford Motor Company's reduction of its production of passenger cars to meet the Government's policy of conservation, as well as the difficulty of securing shipment by railroad, Mr. Flint's allotment of passenger cars has been limited for the past several months, as compared with his former average of 1000 cars per month. Mr. Flint, like many other dealers, had strenuous work to do to secure even a small number of passenger cars to partially supply the demand. In order to secure and make sure of his allotments he resorted to driving the cars overland from the factory assembling branch at Long Island City, N. Y., and from the factory branch at Buffalo, N. Y.

In view of the gradual curtailment of passenger car production, the Flint organization, for the period of the war, is concentrating its efforts on assembling and equipping with various types of bodies the regular Ford commercial chassis and the Ford one-ton truck, and in employing the sales force in selling



The Dutee Wilcox Flint Ford Service Station on Allens Ave., South Providence.

them. This is a branch of the business on which attention can be centered during the war, as the commercial car and truck have not come under the ban of the Government as non-essential. Concentration along the lines of conservation particularly includes service work for the thousands of Ford owners in Mr. Flint's territory. Although the capacity of the Flint service station is not being used as extensively as it was before the passenger car curtailment, he is enabled gradually to regulate the volume of service work according to the number of men available. At present 50 people are employed in the general offices and mechanical departments at the Providence station and 150 people are engaged in the main store in Providence and in the other branch stores and service stations. Before the curtailment of passenger car production 375 people were employed in all branches of the organization. Many of them were road men, and that loss is not felt owing to the greatly reduced supply of new cars.



1—Office of the General Manager, Benjamin Peckham, Who Actively Directs the Staff and Carries Out Mr. Flint's Policies. 2—Accounting Department, Where the Finances Are Carefully Looked After by a Corps of Efficient Accountants. 3—In Foreground, Tractor Department Manager's Office, and Beyond, the General Offices of the Dutee W. Flint Gasoline Co., Inc., with the Manager, Alexander R. Fritz, at the Extreme Right.

Mr. Flint does a considerable business in used Ford cars, taking them in only on the established trade basis. All used Fords are put into first-class running order, the cost of such work having been predetermined by his appraisers and the charge is included in the prices at which the machines are sold.

The Providence Service Station.

The Flint service station is located within several hundred feet of the Providence river, on Allens avenue, and has a frontage of 160 feet and a depth of 170 feet. A railroad siding at the front of the building affords excellent shipping facilities for all freight. In normal times Ford car units were received at the railroad siding, direct from the Ford Motor Company's branches, and unloaded at the door of the assembling department.

Until recently the majority of the cars distributed by the Flint organization were received at the service stations in Providence and Connecticut points in units and then assembled into complete cars. Under such conditions these service stations were extremely busy.

The modern service station building is of brick and cement fireproof construction throughout. The front has two stories, with general offices on the second floor and the main entrance is on the ground floor at the side. Upon entering the station one directly faces the parts and supply department, which is enclosed, with serving counter at the front. Here thoroughly trained and courteous clerks promptly serve customers. All parts, supplies and accessories are sold for cash. There is a cashier's office at the end of the counter, where all cash is received and transactions accounted for.

In front of the building on the ground floor is a large office occupied by the accounting department, presided over by Julius G. Ford, assisted by a competent force of young ladies. This office is furnished with all the modern accounting equipment. The system of accounting is free from unnecessary complication, due to all business being transacted on a cash basis.

The other departments in the one-story section of the building are: New car stock department, Fordson tractor department, office of the superintendent and service manager, car assembling department, machine shop and repair department, paint shop and garage for the gasoline delivery trucks.

On the second floor are the general executive offices of the directing staff, presided over by the general manager, Benjamin Peckham, and the assistant manager, J. F. Peckham, Jr., who are systematic and thoroughly trained business men of broad caliber. Here also is loated the private office of Dutee Wilcox Flint, and adjoining it is the office of his private secretary, Miss McTernan, who has held that position for twelve years. It is said of Miss McTernan that she is all business, with frills and foibles eliminated. It might be stated here that during the busiest periods all correspondence is dictated on the Dictaphone. The executive offices are handsomely furnished in mahogany, with all the most modern office appliances and equipment, and are separated by heavy plate glass and entirely enclosed.

The wireless tower on the roof of the service station was formerly used to carry messages back and forth between the service station and Mr. Flint's steam yacht when he and his general manager, Mr. Peckham, were off on recreation trips. This wireless station was disconnected shortly after the United States entered the war and Mr. Flint's yacht was turned over to the Government.

At the side of the building on the second floor are located the executive and business offices of the Dutee W. Flint Gasoline Co., Inc., and the office of Harvey Flint, manager of the Fordson tractor department, who is a brother of the head of the organization. He was especially selected for this department because he has specialized in agriculture. The Dutee W. Flint Gasoline

4
Ford Cars
5
6
7

4—The Largest and Handsomest Gasoline Filling Station of the Dutee W. Flint Gasoline Co., Inc., Located at Broad and Myrtle Sts., Providence, R. I. 5—The Main and Largest Store, Located at 172 Washington St., Providence. 6—A Section of the Sales Room of the Providence Store. 7—The Large Gasoline Storage Tanks Adjoining the Service Station, with Several of the Delivery Trucks in Foreground.

Co., Inc., although a separate organization from the Ford distributing agency, is more or less allied with the interests of the Ford agency, due to the fact that Mr. Flint felt, from its inception, that he required an efficient and systematic gasoline and oil distributing department to serve his 20 stores and service stations. This department is managed by Alexander R. Fritz, who is well known as an oil specialist.

The machine shop is fully equipped with modern machinery, including lathes, drill presses, acetylene welding outfit and many special tools and other machinery, a general list of which is given below and which will be of exceptional interest to those who seek to conserve in time and labor:

'Connecting rod aligning block.

Piston holder for placing rings and tightening rods to wrist pins.

Triple gear block to hold gears while reaming.

Piston block to hold for reaming wrist pin bushings.

Main bearing cap oil-way cutter.

Cylinder block holder to fit crank shaft.

Cylinder block holder to fit rods and grind valves.

Electric dynamo and engine frame for running in engine, testing for oil leaks, compression, magneto output and to loosen overhauled engine before placing in case.

Transmission and engine case horse to hold these units while cylinder and transmission are on the bench.

Rear end testing motor to loosen gears and test for noise.

Reboring mill for reboring cylinder block to oversize.

Brazing outfit for welding crankcase arms and all other broken parts.

Rear end bench for holding rear end while in the process of being O K'd.

Rear end horses to hold up rear of car while the assembly is on the bench.

Chain hoist traveling on an overhead track, to lift engine from chassis and carry to motor bench and testing motor.

The chain hoist is also used to carry dirty engines to a vat of chemical solution, where they are immersed and cleaned of all grease, thus giving the mechanics a clean unit on which to work.

Specialized Tool Equipment.

The repair department is equipped with a large number of high-speed wrenches and other time and labor-saving tools (see Figs. 1 and 2). The equipment makes clear the extent of specialization carried out in this station and how all lost motion and wasted time are done away with. Most of these tools were specially designed by the Ford Motor Company to fit the particular requirements of overhauling work on the Ford chassis. The rear-end jack shown in illustration (Fig. 1) was designed and built by Joseph Lewis, popularly known in the service station as the high-speed specialist.

All tools and small mechanical equipment are kept in systematic order in a special tool room and are issued to the employees on requisitions made out and signed by the foreman of the shop. When mechanics have finished using the tools they must be returned, and the habit of losing tools in this station has been almost entirely eliminated.

The Flint service station is operated on the basis of standardized operations and a flat rate of charge is made on each operation of overhaul or adjustment. By this system they have been enabled to set a uniform and consistent schedule of prices for all work and know in advance just what any operation of overhaul will cost. On this basis the customer can accept or reject it, and if acceptable he knows when he calls for his car what the charge will be. The basic cost of labor on each operation was predetermined by repeated practise on numerous operations, so that it was a simple problem to set a schedule of charges that are fair to all. These charges, however, are for labor only, and all parts and materials used on the jobs are charged for extra.

When a customer delivers his car to the service station for any overhaul or adjustment that he may deem necessary, regardless of what he has determined the car needs, the service manager delegates an expert tester to drive the car and determine whether there is anything else that requires attention. If he finds other mechanical defects, he makes a report on the same to the service manager, who, in turn, makes the facts known to the owner. Then it is for the owner to judge as to whether he should include them in his order for work to be done.

The details of the customer's order are placed on a shop order blank, specifying the parts and supplies to be used. Before starting on the job the shop foreman fills in a requisition blank as an order on the parts department for all necessary parts and supplies for the job, and the same are charged to the job. Every mechanic working on an operation is given a time ticket containing the shop order number, the particular operation specified, the mechan-

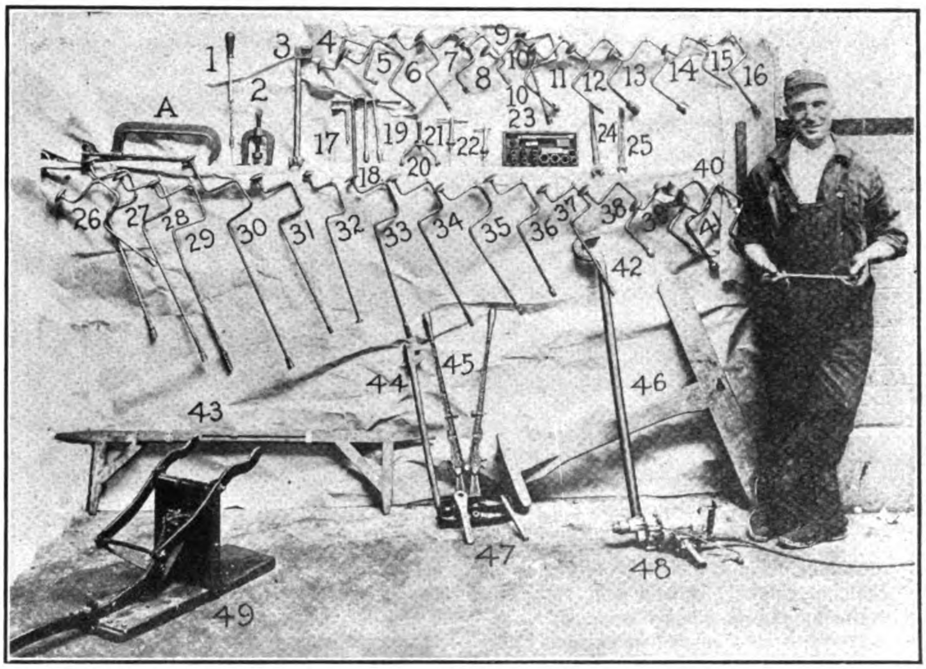


Fig. 1—High-Speed Wrenches and Other Tools Used for General Overhauling and for Building Up a Ford Car Complete. Joseph Lewis, Popularly Known in the Service Station as the High-Speed Specialist, Is at the Extreme Right, Holding a Main Bearing Scraper.

ic's name, number and rate per hour he receives, with columns for number of hours, amount and account number. The shop order is in triplicate, first sheet of white bond, second sheet or cream bond and third sheet of Manila cardboard, size 11x8½ inches. This heading is carried on the triplicate sheets of the shop order: "Shop Order. Description of car, owner's name and address, work authorized by, shipping instructions, shop order number, date of order, date wanted." Then follow the head "Instructions," and a number of blank lines for details or order and blank lines, "Signed, Inspector," "Approved, for owner." The following clause is on the original order signed by the owner: "I agree to pay for the above work in cash when ready and understand that prices quoted are for labor only, parts extra."

At the bottom of the original order is this clause printed in red: "Customer Note: All repair work is strictly cash. Estimates are for labor only, parts additional. Customers' cars operated by our staff at owner's risk. Not responsible in case of loss by fire or theft. We are not responsible for loss of tools, switch keys or other articles left in cars." The second sheet is for the shop clerk and has the same heading as the original order, excepting at the bottom of the sheet is this: "Note: When job is completed and cost is computed, shop clerk will promptly return this order to office." On the back of the second sheet of the shop order, which goes to the shop clerk, is a form in which is carried a description of the parts and supplies used, cost and selling price and the time and cost of labor required on the job. These details are recorded on this cost sheet by the shop clerk and then it is turned into the billing department, and from the charges thereon the customer's bill is made out. The third sheet of the shop order is held by the shop foreman until the job is completed, when it is turned over to the shop clerk.

KEY TO THE HIGH-SPEED WRENCHES AND TOOLS AND THE OPERATIONS THEY PERFORM.

A—Clamp to put on rear springs.
1—Ratch screw driver for putting in screws on windshields and fitting up tops.
2—Gear puller for low-speed gear.
3—Bending bar for adjusting speeds.
4-5-6-7—Speed wrenches for putting on running boards.
8—Speed wrench for putting on fenders.
9-10—Speed wrench for body bolts.
11-12—⅝-inch speed wrench to line transmission.
13-14—Speed wrenches for taking off cones cn front wheel.
15—Speed wrench to fit into sockets in set 23.
16—Speed wrench to put on the hub bolts.
17—L wrench to put on steering post.
18-19—⅜-inch T wrench to take out magneto coil.
20—Disc drum puller.
21-22—Valve reseaters.
23—Mossberg socket end wrench set.
24—Flywheel wrench.
25—Wrist pin wrench.
26-27—⅜-inch speed wrench for taking off engine stud bolts.
28—Speed wrench to tighten fenders.
29—Speed wrench to take off radiator.
30—Speed wrench to take off cylinder head.
31—Speed wrench for different sockets.
32—Valve grinder.
33—Speed wrench to put on brackets for rear fender.
34—Speed wrench to put on top rests.
35—Speed wrench to put on brackets for rear fender.
36—Speed wrench to put on differential driving gear
37—Speed wrench to put on dash bolts.
38-39—Speed wrench to put on rear wheels.
40—Speed wrench to put on rear spring perches.
41—Speed wrench to put on brake shoes.
42—Tool to straighten front axle.
43—Gauge to line up front wheels.
44—Tool to straighten front fender brackets.
45—Bolt cutter.
46—Gauge to measure distance between headlights.
47—Tools to put on head and sidelights.
48—Electric drill.
49—Jack to place under differential housing and raise rear end.

Metal Department and Body Shop.

In connection with the repair department there is a first-class radiator repair department, where all kinds of radiator repairs are made by experts, and a sheet metal department that is equipped with a cornice brake and metal folding machines, and here fenders and mud guards are repaired and the facilities

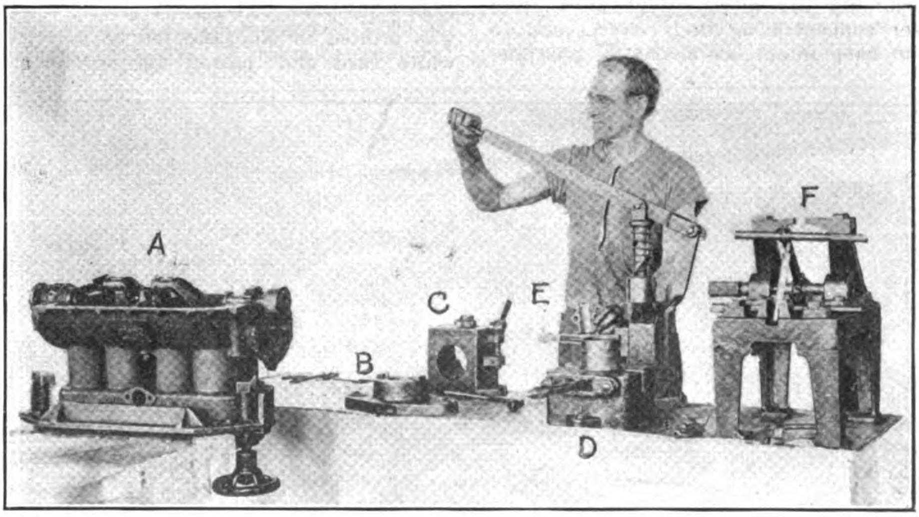
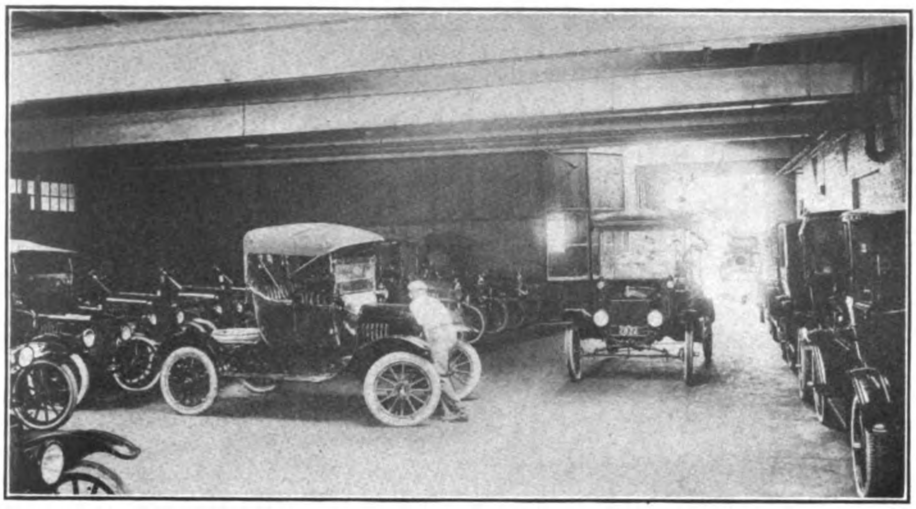


Fig. 2—Form Machines for Holding Pieces of Work. A—Cylinder Block Holder for Scrapping in Main Bearings. B—Triple Gear Holder for Reaming. C—Piston Holder for Reaming Wrist Pin Bushings. D—Piston Holder for Fitting Rings to Pistons and Rods to Wrist Pins. E—Main Bearing Cap Oil Groove Cutter. F—Connecting Rod Straightening Machine.



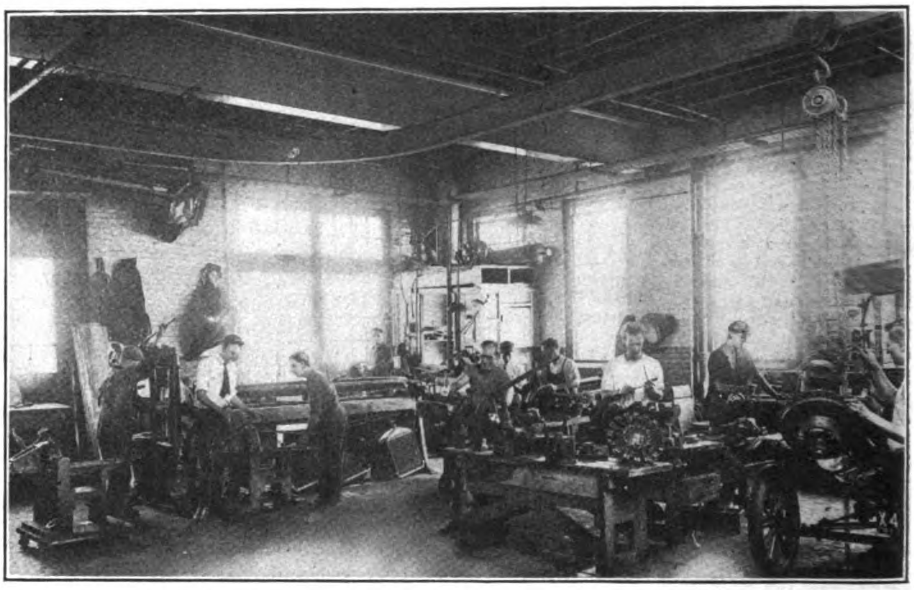
New Car Stock Department. Where New Cars Are Held Until Delivered to Owners and Branch Stores.

are sufficient to make new fenders and guards if necessary. They also have a body-building shop where special commercial bodies are made to order; and their paint shop is as complete as all other departments. All special iron work is done in the service station. In fact, their facilities and organization of specialists are so complete that one would imagine himself in a regular motor car factory. There has been nothing overlooked or omitted that would afford the most satisfactory service, and the perfect, simple system under which it is operated has greatly reduced the cost of service to Ford owners in the territory served by the Dutee W. Flint distributing agency.

Mr. Flint has instilled into his organization a perfect order of cleanliness and neatness. At quitting time all nooks and corners of all departments must be thoroughly clean of all waste, oil and water. The same order of neatness is maintained in all the offices of the staff —no desks littered with papers, as there is a file for every important paper.

A considerable number of the Flint organization entered the service of their country. In order to instill into those remaining the necessity of more than ever concentrating their efforts and to help keep intact, as nearly as possible, the efficiency of the original organization, the following persuasive appeal was printed in blue and red on a large white card and posted in prominent places in the service stations and stores and the men showed a spirited response:

> ***WAR AND SERVICE***
>
> LABOR IS SCARCE. OUR MEN ARE BEING CALLED TO SERVE THEIR COUNTRY. WE SHALL NOT REPLACE THOSE WHO LEAVE, BUT SHALL ASK THOSE WHO ARE LEFT TO WORK HARDER AND SO DO THEIR SHARE.
>
> WILL YOU BE CONSIDERATE? IT IS ONE WAY YOU CAN HELP.
>
> DUTEE WILCOX FLINT.



A Section of Repair Department Where Units of the Car Are Overhauled. Note the Chain Hoist in the Foreground on the Right, Holding an Engine Just Lifted from a Chassis. This Chain Hoist Travels on an Overhead Track That Encircles the Entire Shop and Heavy Units Can Be Lifted and Carried to a Number of Locations.

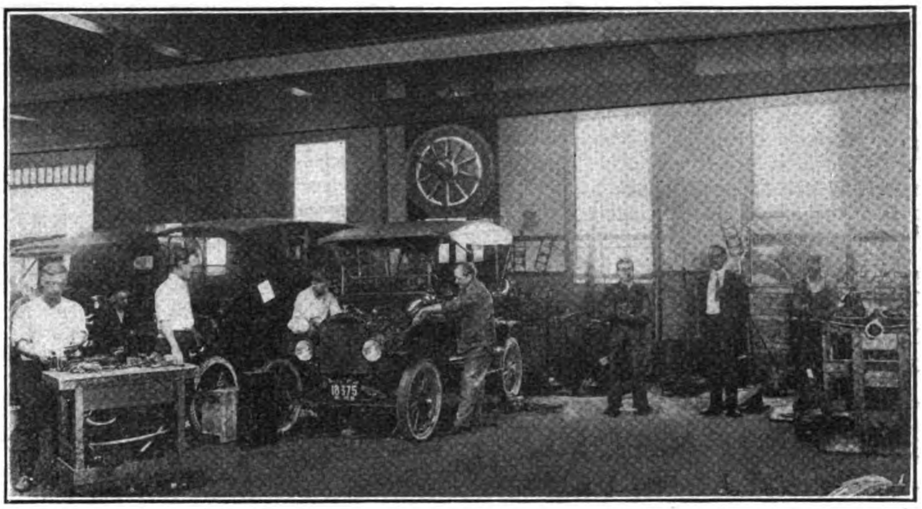
New England Distributor of Fordson Tractor.

Dutee Wilcox Flint is the New England distributor of the Fordson tractor manufactured by Henry Ford & Son. Harvey Flint is the manager of the tractor department. During the past several months the tractor and its working units, a No. 7 Oliver plow and a disc harrow, have been transported on a five-ton Pierce-Arrow motor truck over sections of New England. This truck is provided with skids for unloading the outfit and it is manned by several experienced operators to handle the demonstration work.

Demonstrations of the tractor have been given to large numbers of farmers and prospective dealers. Mr. Flint, in carrying out the initial policy of Henry Ford & Son, in introducing the tractor during the summer has been contributing this great tractor educational work at his own expense and selling the trac-

OFFERED AT A LOW PRICE
ARTICLES ON THIS RACK AT SPECIAL PRICES

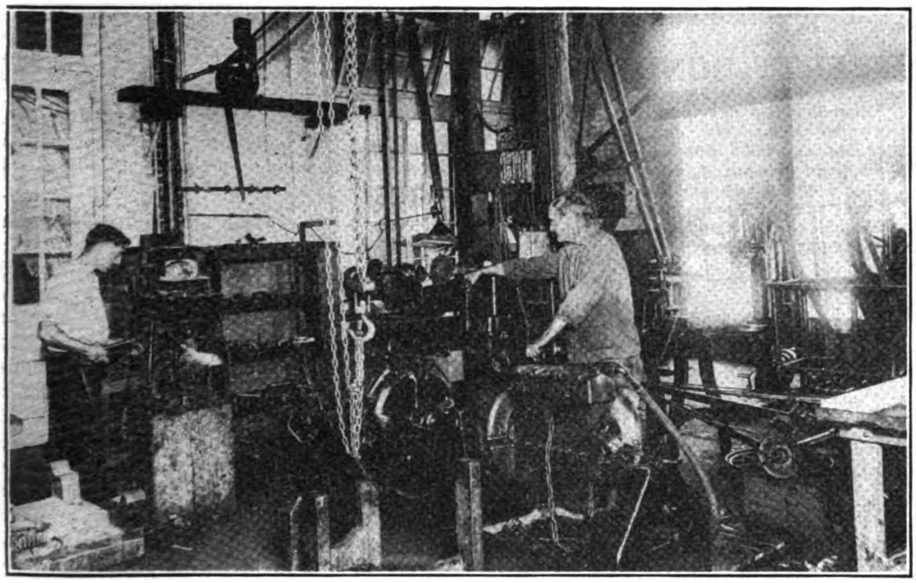
Parts and Supplies Department in Service Station.



A Section of Repair Department, Showing Mechanics Working on Chassis.

tors to farmers at the cost price, $750. He is distributing 500 tractors at actual cost in order to encourage the immediate use of Fordson tractors to greatly aid in increasing farm production and materially help to conserve and increase the resources of New England.

On Aug. 12th the motor truck, loaded with the tractor outfit, was started on an educational and dealership campaign. The schedule of this trip covered 35 counties, with an approximate distance of 2600 miles to be covered. The Flint tractor distributing agency will carry a complete stock of tractor repair parts and maintain an unexcelled mechanical service at its service stations in Providence and Connecticut. Other tractor service stations will be established with the largest and most centrally located sub-agents.



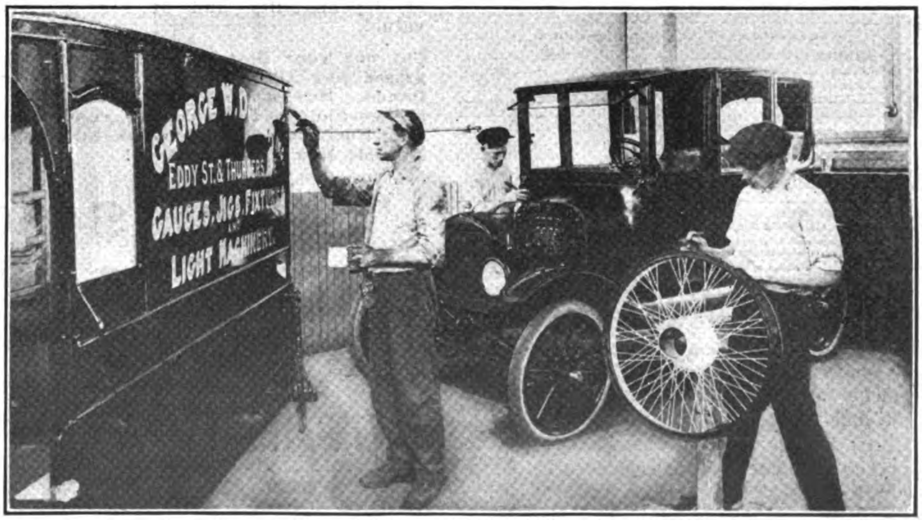
Machine Shop, Showing Engine Installed in Testing Stand and Connected with Electric Testing Motor.

3,000,000 Gallons of Gasoline Sold Yearly.

The Dutee W. Flint Gasoline Co., Inc., is a separate company from the Dutee Wilcox Flint motor and tractor distributing agency. The gasoline business organization and distributing facilities have been developed gradually during the past five years. It was started in a small way only to serve the numerous Flint branches. Its growth was natural and the expansion of the service was rapid, made so through the efficiency of serving not only the retail trade, but numerous motor car agencies and large operators of trucks. Alexander R. Fritz, an expert oil man, is the manager of this department. The company also specializes in the very best grades of lubricating oil.

The gasoline company operates eleven gasoline filling and lubricating oil stations in Providence and vicinity. Their pumps are driven by electric motors, the supply of gasoline being pumped from the large storage tanks into reserve tanks and from these tanks cars are filled by gravity. The large two-cylinder pump shown in the illustration of their latest and handsomest filling station at Broad and Myrtle streets, Providence, was designed and built in the Flint service station. The company's sales of gasoline average more than 200,000 gallons a month, or approximately 3,000,000 gallons annually. In order to transport this large quantity of fuel to their service stations and large gasoline users the following motor tank trucks are continually operated: Four Pierce-Arrow tank trucks of 1650, 1460, 728 and 720 gallons capacity, respectively, and one Ford tank truck of 345 gallons capacity.

The railroad siding in front of the service station extends alongside the large gasoline storage tanks that are located in a brick-walled and concrete pit adjoining the service station, affording convenience in running off gasoline from oil tank cars into the storage tanks. The company also receives gasoline from boats at the State pier, located several hundred feet from the gasoline storage station. In the pit are four large tanks, each holding 25,000 gallons, and six tanks, each holding 10,000 gallons, making a total storage capacity of 160,000 gallons; and underneath the floor of the service station are three tanks holding about 22,800 gallons more. The development of the gasoline business by Mr. Flint would make an extremely interesting chapter in the business life of any man, but now that the battle has been won and Flint's gasoline is acknowledged to be in keeping with his standard of quality, he is satisfied to sell that product, and others can do the worrying if they wish.



Paint Shop, Where All Fine Jobs of Painting and Lettering Are Executed.

Sales Forms Used.

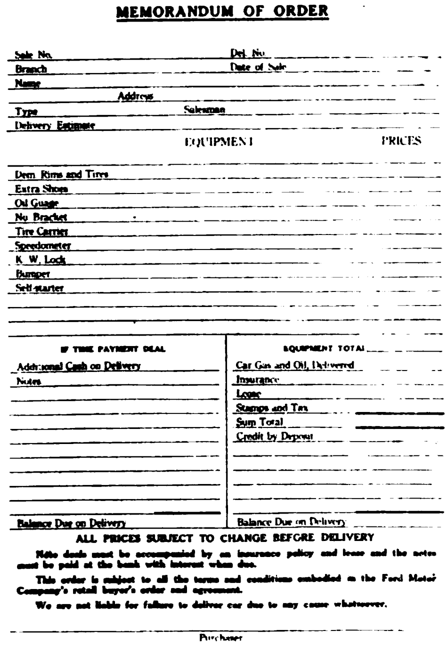
The sales department uses a simple set of blank forms in sales transactions. In the sales memorandum of order (Fig. 4) you will note the blank section for properly filling in if the order is a time-payment deal, as Mr. Flint sells cars on the deferred payment plan, and his transactions on this basis have been quite satisfactory. Another form is the "Shop Tag and Delivery Check" (Fig. 5), which is explanatory.

Driving lessons are given to new owners by a corps of specially trained instructors, a reasonable number being given to each purchaser.

A Modern Merchandizer.

Dutee Wilcox Flint sets the pace for his selling organization. He is, first of all, a real salesman. He has deviated from the beaten path of worn-out, old methods of selling. His advertising carries the keynote of his own sales talk. It is real human-interest copy. Even the lowest priced car in the world requires selling ability, for the great majority of Ford cars are sold to those in medium circumstances. To anyone the expenditure of $500 or more must be given serious consideration; then, too, they must be convinced of the reasonable operating and upkeep expense. The Flint organization is fortified with convincing, honest facts applicable to their line, and Flint's sales talks sell.

The attractive style of these breezy and interesting talks as presented to the public is shown in the advertisement reproduced on this page. It is taken from one of Mr. Flint's many heart-to-heart talks in advertisements inserted in the local newspapers.



MEMORANDUM OF ORDER

Sale No. Del. No.
Branch Date of Sale
Name
Address
Type Salesman
Delivery Estimate

EQUIPMENT PRICES

Dem. Rims and Tires
Extra Shoes
Oil Guage
No. Bracket
Tire Carrier
Speedometer
K. W. Lock
Bumper
Self-starter

IF TIME PAYMENT DEAL
Additional Cash on Delivery
Notes
Balance Due on Delivery

EQUIPMENT TOTAL
Car Gas and Oil, Delivered
Insurance
Lease
Stamps and Tax
Sum Total
Credit by Deposit
Balance Due on Delivery

ALL PRICES SUBJECT TO CHANGE BEFORE DELIVERY

Note deals must be accompanied by an insurance policy and lease and the notes must be paid at the bank with interest when due.

This order is subject to all the terms and conditions embodied in the Ford Motor Company's retail buyer's order and agreement.

We are not liable for failure to deliver car due to any cause whatsoever.

Purchaser

Fig. 4—Sales Memorandum of Order.

Ford
THE UNIVERSAL CAR

GLORIOUS NEWS

For over a week we've been quick-stepping to where the boy leaves the daily newspaper—hot in pursuit of the latest news from the Front.

On the whole, has it been disappointing news? No, NO, NO! Just the opposite—GLORIOUS NEWS! Those can't-be-licked Britishers, backed by brave French Soldiers and the fighting boys from good old Yankeeland, did wonderful work!

I guess every one of us is filled with sincere admiration for the armies over there—AND FOR THAT NOBLE ENGLISH GENERAL, SIR DOUGLAS HAIG! THREE CHEERS FOR HAIG!

LIBERTY BONDS FOR US

Saturday the drive is on. If we can't go to fight—we can stay to help. If we can't be one of the $1000 War Savings Stamp Limit Men—or can't buy a $5000 Liberty Bond—by George, what's the matter with our hitting 'er up for a $50 bunch of those 4½ per cent. coupons?

If we haven't the ready money—only a part—there are ways provided for us to make up the balance conveniently, without financial hardship. So don't try to flunk with that excuse.

In fact, don't flunk at all! Buy Liberty Bonds. Buy all you can chew! Everybody!—unless you're a self-confessed down-and-outer. And for Heaven's sake don't let anybody admit that.

ONE WAY TO GATHER A STOCK OF LIBERTY BONDS—

BUY A FORD CAR

Buy it because the cost is so enormously LITTLE! Because there's no extravagant waste—no attempt at overwhelming luxuriousness. Instead, FORD is the car of genuine comfort, of remarkable power, of dependability and of 100 per cent. value!

Cut out your first idea—to own a high-priced car this season and no Liberty Bonds. Buy a Ford Car instead. With the cost difference purchase enough Liberty Bonds so you'll have to hire a Safe Deposit Box to store them!

Ford Touring Car F. O. B. Detroit	$450
Ford Runabout F. O. B. Detroit	$435

Yours truly,

DUTEE W. FLINT

OPERATOR OF 20 FORD STORES IN RHODE ISLAND AND CONNECTICUT

The operation of his automobile vehicle business does not fully occupy Mr. Flint, for he is the executive and the principal owner of the D. W. F. Engineering Co., a concern recently organized to manufacture metal specialties. The plant is splendidly equipped and it is now principally producing turnbuckles of the type used for aeroplane construction. Statement is made that the turnbuckles made by this company have extreme strength and are preferred by aircraft builders to other types. So great is the demand for the specialty that the plant is operated day and night to produce it.

Shop Tag and Delivery Check

Sale No. Date Salesman
Name
Address
Type When Promised
Car No. Checked By

EQUIPMENT

Dem. Rims & Tires
Extra Shoes
Oil Gauge
No. Brackets
Tire Carrier
Speedometer
K. W. Lock
Self Starter
Bumper
Regular Tools and Equipment

Equipment Checked by
Shortage Noted

Shortage Checked by
Adjusted, Greased, Gas & Oil Checked
By
Received Complete, Purchaser

Fig. 5—Shop Tag and Delivery Check.

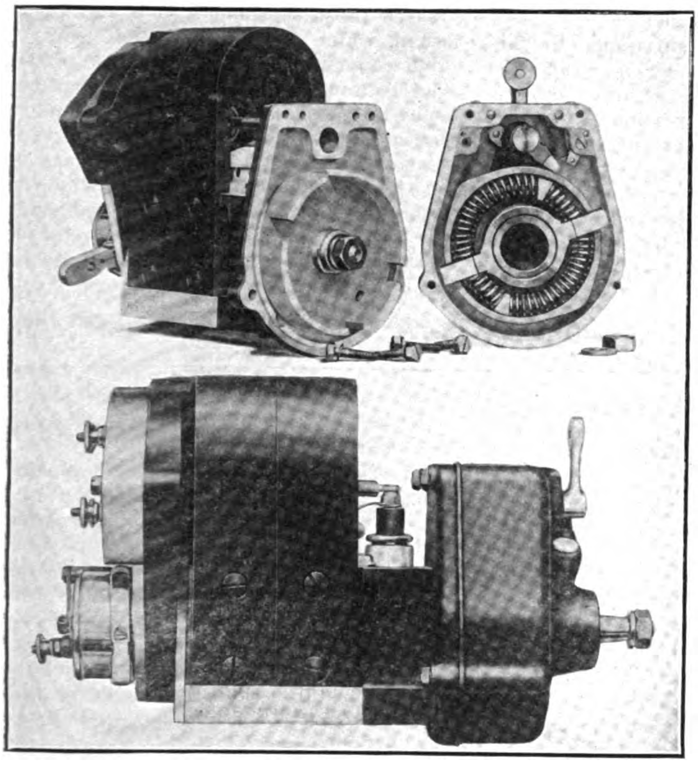
The organization of the company and the establishment of its plant is characteristic of Mr. Flint's business policies and methods—making the most of an opportunity and obtaining results that are the best, both from the manufacturing and the sales viewpoints. The company now has contracts that will necessitate production to capacity for a considerable length of time.

Few men of Mr. Flint's age have been as successful as he. He has demonstrated the possibilites for the young, aggressive business man, and his businesses have been developed upon principles and policies that have received the approbation of those who have made notable successes in industry and commercial pursuits. He is deeply concerned in municipal, state and national affairs and is always one of the first to respond to all appeals to the public for patriotic, charitable or philanthropic purposes.

Mr. Flint has been too busy for the past few years to participate actively in his favorite sport, small yacht sailing, but for a long time he and his brother were of the leaders of the yachtsmen of Narragansett Bay, a coterie of amateur sportsmen who are known the world over for their skill and daring. The Flint pennant has been carried first over the line in innumerable hard-fought races, and has been flown on a series of yachts bearing the name Wanderer, probably the most consistently continued title in the history of American yachting, for it has identified the yachts of the Flint family for nearly half a century.

New Bosch Magneto Impulse Starter.

The Bosch Magneto Co. is now producing an impulse starter that is designed primarily for use with types DU4 and ZR4 independent Bosch magnetos for four-cylinder engines used for truck and tractor work, but it can be supplied for special orders for use with any standard types of Bosch magnetos for marine, automobile, airplane or stationary engines, or for any other ignition. It is not intended for attachment to any magneto now in use, and is supplied only as a part of new Bosch magnetos.



Bosch DU4 Type Magneto, with Impulse Starter, Showing the Instrument Designed for Easy Truck and Tractor Starting.

The impulse starter is designed to facilitate starting the engine, automatically increasing the speed of the magneto armature with slight turning of the engine shaft at the exact time to fire the cylinders, thus affording full electrical capacity of the magneto at very slow engine speed. In effect it is an auxiliary to the magneto that is interposed between the armature drive and the armature shaft. When the engine is turned the armature is held stationary, and the energy necessary to turn the armature is obtained by compressing a series of helical springs. At the predetermined position the springs are released and the armature is turned at high speed for a part of a revolution. The initial spark having been obtained the engine begins to fire regularly, and when it attains a speed of 120 revolutions a minute the starter is automatically disengaged and the armature drive takes up the work as a flexible coupling.

The construction of the starter is shown in the accompanying illustration. It is contained in a water and dust tight aluminum housing and it consists essentially of two helical springs carried within a flanged disc. Meshing with the coils of the springs, which are on guides, are the arms of a cross member mounted on a sleeve by which the armature is driven, these arms and the seats against which the ends of the helical springs bear, being seated in the niches in the flange of a disc mounted on the armature shaft. As the driving sleeve is turned the springs are compressed, and when the point of desired compression is reached the compressed springs turn the armature shaft until the limit of expansion is reached. The movement is sufficient to fire an engine and then the starter is nothing more than a flexible coupling. As will be noted the entire movement of the armature before firing is less than a third of a revolution.

The operating parts are all high grade steel and have large factors of safety. The spring action is carefully balanced to impart even torque to the armature, and as the heavier part of the starter is carried on its own sleeve bearing there is no added strain on the magneto bearings. The starter is controlled by a lever mounted on a shaft extending from the front of the housing. The lever is constructed so that it may be operated by hand or connected with controlling linkage. Should the starter be accidentally engaged while the engine is running it will not be really functioning, and no damage could result. By the use of one oil cup the starter is fully lubricated, oiling being required monthly.

Increase In General Motors Stock

The stockholders of the General Motors Corp. at a special meeting held in Wilmington, Del., voted to increase the capital stock from $200,000,000 to $300,000,000. The increase in the capitalization raises the preferred stock from $50,000,000 to $100,000,000 and the common stock from $150,000,000 to $200,000,000.

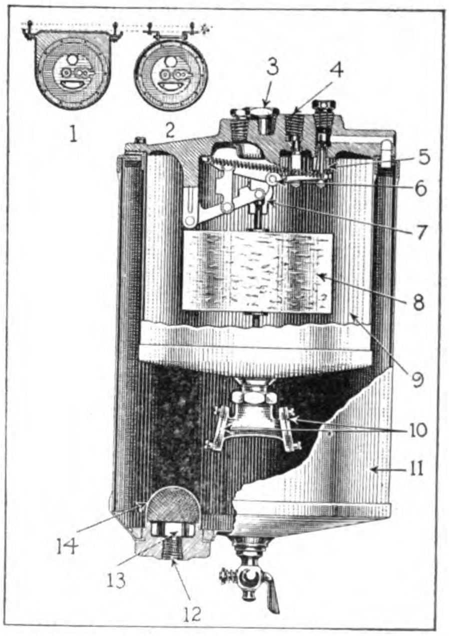
It was also voted to distribute a bonus of 10 per cent. of the net earnings each year to employees of the General Motors Corp.'s subsidiaries as a reward for their contributions to the success of the companies.

A New Stewart Gasoline System

A type of vacuum fuel feed system that is especially designed for use with all heavy duty gasoline engines, for tractors, trucks and stationary power production is now produced commercially by the Stewart-Warner Speedometer Corporation, Chicago. It is known as model 146-A and it is built heavier than any system previously produced. It has largely increased capacity and accelerates the flow of gasoline. It is made in two sizes, one with a round shell having 3¾ pints capacity, and one with a D-shape shell having five pints capacity.

One of the features is that it has a flapper check valve in the gasoline line at the top of the tank, which prevents the gasoline receding when the suction ceases. This keeps the gasoline line full, so that the instant the float chamber is emptied the filling is begun automatically. The air vent is a venturi type, which insures instant action and rapid emptying of the inner chamber into the lower chamber. The inner chamber has a double flapper valve, which allows it to be emptied in half the time that would be required with a single valve.

The float is of cork, heavily coated with Acco, so that it cannot become saturated with gasoline. There is a removable strainer in the gasoline outlet to the carburetor that filters the fuel and insures its purity.



Stewart Vacuum Heavy Fuel Feed for Trucks and Tractors: 1, D-Shape Reserve Tank, Capacity Five Pints; 2, Round Reserve Tank, Capacity 3¼ Pints; 3, Gasoline Inlet; 4, Vacuum Line; 5, Venturi Type Air Relief Valve; 6, Nickel Pins; 7, Flapper Check Valve; 8, Cork Float; 9, Large Capacity Inner Chamber, Capacity 30 Gallons an Hour at Five Pounds Vacuum and 20 Gallons an Hour at Two Pounds Vacuum; 10, Double Flapper Valve; 11, D or Round Shape Reserve Tank; 12, Outlet to Carburetor; 13, Sediment Trap; 14, Gasoline Trap Strainer, Removable with Trap.

Sunday Gasoline Conservation In Effect

Motoring Public Demonstrates Patriotism In Response to Request from Fuel Administration To Refrain From Using Motor Cars On Sundays for Pleasure—Over 7,500,000 Gallons Saved the First Sunday

The Fuel Administration called upon motorists, owners of motor boats and truck operators to cease using gasoline for pleasure purposes on Sundays commencing with the first Sababth in September and to continue this conservation until further notice. No mandatory order was issued, but the public arose to the occasion and demonstrated its patriotism on the first Sunday by conserving approximately 7,500,000 gallons. At this rate of reduction in consumption it is believed that it will only be necessary to restrict the use of gasoline or five or six more Sundays in order to replenish the reserves to a point where conservation on this scale will not be required.

A Necessary and Practical Act of Patriotism.

There were a number of exceptions to which the restriction does not apply, as shown in the centre column on this page.

The Fuel Administration's statement, which was issued jointly by Administrator Garfield and Mark S. Requa, Director of the Oil Division of the Fuel Administration, was as follows:

"The United States Fuel Administration considers it necessary that a limited conservation of gasoline be undertaken in the States east of the Mississippi River in view of the increasing demand for gasoline for war purposes and the paramount obligation of meeting promptly and fully all overseas requirements. An appeal is made, therefore, to the people of the United States east of the Mississippi River to exercise rigid economy in the consumption of gasoline during the next few weeks as a necessary and practical act of patriotism.

Consumption of Gasoline Now at Its Highest Point.

"War necessities are being and will continue to be promptly and fully met, but this is the period of the year when consumption of gasoline is at its highest, and the increased domestic demands, together with the extensive military operations in France, have rendered necessary for a limited period the adoption of safeguards against possible shortage.

"In view of the difficulty, if not the impossibility, of differentiating between the various uses to which automobiles are applied, the United States Fuel Administration believes that the greatest measure of economy can be effected with the least intereference with the business of the country through the discontinuance of all classes of motor vehicles, motorboats and motorcycles on Sundays.

"The United States Fuel Administration therefore requests that in the section of the United States east of the Mississippi River there shall be a discontinuance of use of the vehicles above specified, including all such as are operated for hire, on each Sunday hereafter until notification that the need for such discontinuance has ceased."

A subsequent statement issued by the Fuel Administration gave in brief the objects that were to be attained by the conservation and a suggestion as to how the order should be interpreted. This statement read as follows:

"The request made by the Fuel Administration that pleasure riding be discontinued on Sundays for the present in order to conserve our supply of gasolene for war needs, was not intended to prohibit reasonable use of gasoline driven vehicles as the means of necessary transportation, where other means are not available.

Exemptions From Order for Sunday Gasoline Conservation

Tractors and motor trucks employed in actual transportation of freight.

Vehicles of physicians, used in performance of professional duties.

Ambulances, fire apparatus, police patrol wagons, undertakers' wagons, and conveyances used for funerals.

Railway equipment using gasoline.

Repair outfits employed by telephone and public service companies.

Motor vehicles on errands of necessity in rural communities where transportation by steam or electricity is not available.

"Mr. Garfield believes that the public will construe the request wisely and intelligently and will not use their automobiles for other than the most necessary purposes.

"The intention of the request is that all mere pleasure riding be eliminated, but that necessary use of the automobiles be not interfered with.

"Just what is pleasure riding and what is necessary use must be determined by the individual; keeping in mind always that we must have additional reserves of gasoline so that there may be no possibility of delays in overseas shipments.

"The United States Fuel Administration will not attempt to tabulate automobile traffic on Sundays."

The National Automobile Chamber of Commerce viewed the order with favor, feeling that it would give a further opportunity for motorists to prove their loyalty to the war programme, and expressed these sentiments in a statement issued, which in part was as follows:

"In connection with the request of the Fuel Administration for the discontinuance of Sunday automobiling, motorboating and motorcycling for mere pleasure, we are told by an official of the Fuel Administration that the restriction is expected to be necessary only a short time, probably four to six Sundays, which would provide ample increased stocks of gasoline.

Production Increased 27 Per Cent. During July.

"The production of gasoline increased 27 per cent. in July over the same period last year, but consumption increased 29 per cent.

"It was felt that, with the increasing demands from overseas, and some difficulties in transportation, a conservation plan such as outlined is necessary.

"Mr. C. C. Winningham, chief of the Gasoline Conservation Division of the Oil Division of the Fuel Administration, said it was deemed best to make this first appeal one to the patriotism of the owners, and the feeling is general that the request will be complied with by all car owners.

Automobile Officials View Order With Favor.

"After the conference between Dr. Garfield and Mark L. Requa, chief of the Oil Division, statement was made that the action was deemed necessary as a safeguard against any possible shortage of gasoline for our war needs. Because of the difficulty of differentiating between the various uses to which automobiles are applied, it is believed the greatest measure of economy could be effected with the least interference with the business of the country through the discontinuance of the use of motor vehicles, motorboats and motorcycles on Sunday.

"Automobile officials view the new order with favor because it will give a further opportunity for motorists to prove their loyalty to the war programme."

In connection with the request of the Fuel Administration that taxicabs and pleasure cars be not run on Sunday, A. C. Bedford, chairman of the National Petroleum War Service Committee, made the following statement:

"As a result of the concerted effort of

every factor in the petroleum industry, there has been a substantial increase in the production of gasoline during the past year. Appeals for the conservation of gasoline have also been heeded. It had, therefore, been hoped that no unusual methods of conservation would be necessary. But war necessities are paramount and must be met.

"It has so happened, however, that a tremendously increased demand for gasoline incident to the increased and enlarged war activities on the part of our own army and our Allies in Europe has come at the heighth of the season of greatest demand for gasoline for consumption in motor vehicles in this country. The situation has been intensified by the unusually favorable weather conditions recently prevailing.

"This season is to the gasoline industry what the middle of winter is to the coal trade—it represents the peak-load of consumption. This period of peak-load, however, is not an extended one, and the precautionary measures now taken as a safeguard against any possible shortage of gasoline for our war programme need not necessarily be of long duration.

Not Enough Gasoline at Present for All War Needs.

"The specific scheme of conservation for the moment applies only east of the Mississippi River. Producers and refiners in the territory west of the Mississippi are now making a careful survey of the whole situation, and unless it is possible to obtain from them a sufficient supply of gasoline otherwise, it may be necessary that within the next week or more the scheme of conservation shall be applied throughout the country.

"The public should understand that the sole purpose of this conservation programme is to supply all war needs and all essentials of domestic consumption. There is not at present enough gasoline for all war needs and all domestic purposes; therefore, the less essential domestic requirements must for the moment stand aside. Under ordinary circumstances the present output of gasoline would represent more than enough to take care of the normal requirements of this country and those countries which depend upon us for their usual supplies.

"The situation is similar to that now prevailing with reference to sugar and wheat; we have enough for our own uses, but not for ourselves and our Allies, too. It is the part, therefore, of every citizen to get behind this programme as a very definite step in winning the war."

Following the first Sunday on which the conservation movement became effective, A. C. Bedford issued a statement summarizing the results that had been obtained, the figures for which were compiled at the request of the Fuel Administration and were obtained by employees of the oil companies. His statement was as follows:

"Patriotism cannot be reduced to terms of accounting, but statistics gathered from the territory to which the Fuel Administration addressed its plea for the suspension of pleasure riding in motor vehicles last Sunday in order to save gasoline, furnish striking evidence of the unswerving and unfailing popular support to any war measure.

"Generally speaking, the returns from the States east of the Mississippi, which were those affected by the request, show that the mere intimation of the Fuel Administration that pleasure riding should cease on Sunday was unhesitatingly obeyed by an overwhelming percentage of automobile owners and users.

"It is true that there was a good deal of variation in the extent of the response. In some sections patriotism, as evidenced by the almost total non-use of pleasure vehicles, swept the State; in others, the observance of the request was not so emphatic. In the latter instance the incomplete compliance with the Fuel Administration's request was perhaps due to the fact that the scope of the request was not comprehended or that the situation which prompted the administration's appeal was insufficiently appreciated. Then general result, however, must be intensely gratifying to the department which initiated this policy of voluntary effort.

"To employees of the various oil companies supplying the gasoline requirements of the territory concerned was delegated the task of determining the decrease in the volume of automobile traffic as a result of the Fuel Administrator's request. For the purposes of this test men conversant with such work were placed at key points on automobile routes of all descriptions, both in urban and rural communities in 25 States.

"A careful census was taken of all cars passing these points between the hours of 2 and 4 P. M. on Saturday, Aug. 31. A similar count was made at the same points and between the same hours on Sunday, and the difference was regarded as representing the number of cars which would ordinarily have been used on Sunday, but which were idle in respect to the Fuel Administrator's request.

"The investigation proved that the more westerly States led in percentage of reduction, Illinois being first with 95, Ohio second with 93, and Wisconsin third with 91. It is estimated that the observance of the request over the Eastern section of the country resulted in the saving of from 100,000 to 150,000 barrels of gasoline.

"The result of the test is presented below by States, the automobile traffic between the hours mentioned on both days being given in the first two columns, the columns following showing the percentage of reduction in the use of cars on Sunday and the automobile registration in each State:"

State.	2-4 p.m. Aug.31.	2-4 p.m. Sept.1.	P.C. Reduc.	Cars Reg'd.
Illinois	19,997	1,006	95	362,742
Ohio	28,774	1,952	93	415,962
Wisconsin ..	2,181	183	90	182,700
Dist. Col. ..	7,939	774	90	36,968
Kentucky ..	3,596	891	90	57,543
West Va. ..	826	107	87	34,371
Louisiana ..	3,269	429	87	37,600
Tennessee .	10,115	1,265	87	51,900
Indiana	2,165	334	85	207,381
Maryland ..	6,400	989	84	61,102
Florida	2,282	361	84	42,846
Maine	906	149	83	38,439
Mass.	1,947	354	81	156,798
Alabama ...	3,589	668	81	44,859
Penn.	46,923	8,765	81	324,184
Conn.	8,592	1,721	80	75,900
Rhode Island	3,396	625	80	26,399
New Jersey .	14,663	2,805	80	124,519
Georgia	4,750	906	80	89,481
New York ..	17,627	4,617	74	422,853
Mississippi .	2,016	583	71	37,500
No. Carolina	906	282	68	61,946
So. Carolina	680	230	66	47,950
Michigan ...	6,378	2,245	65	236,981
Virginia ...	1,499	549	63	65,000

Will Discontinue National Motor Car Shows During Period of War

Manufacturers Feel That New York and Chicago Events Would Be Inconsistent With Patriotic Spirit of Industry

The National Automobile Chamber of Commerce has taken action which will undoubtedly result in the discontinuance of the national automobile shows that have been held under the auspices of that organization in New York and Chicago for the past eighteen years. The directors have voted to recommend to the members that this action be taken and there is no doubt but that the recommendation will meet with unanimous approval.

The action of the directors and the reasons therefor were made known through the following statement sent out by the N. A. C. C.:

"With a view to further co-operating with the governmental authorities in conserving labor, fuel and transportation, the Directors of the National Automobile Chamber of Commerce unanimously voted voluntarily to recommend to the members the abandonment during the period of the war of the automobile shows held annually for eighteen years in New York and Chicago.

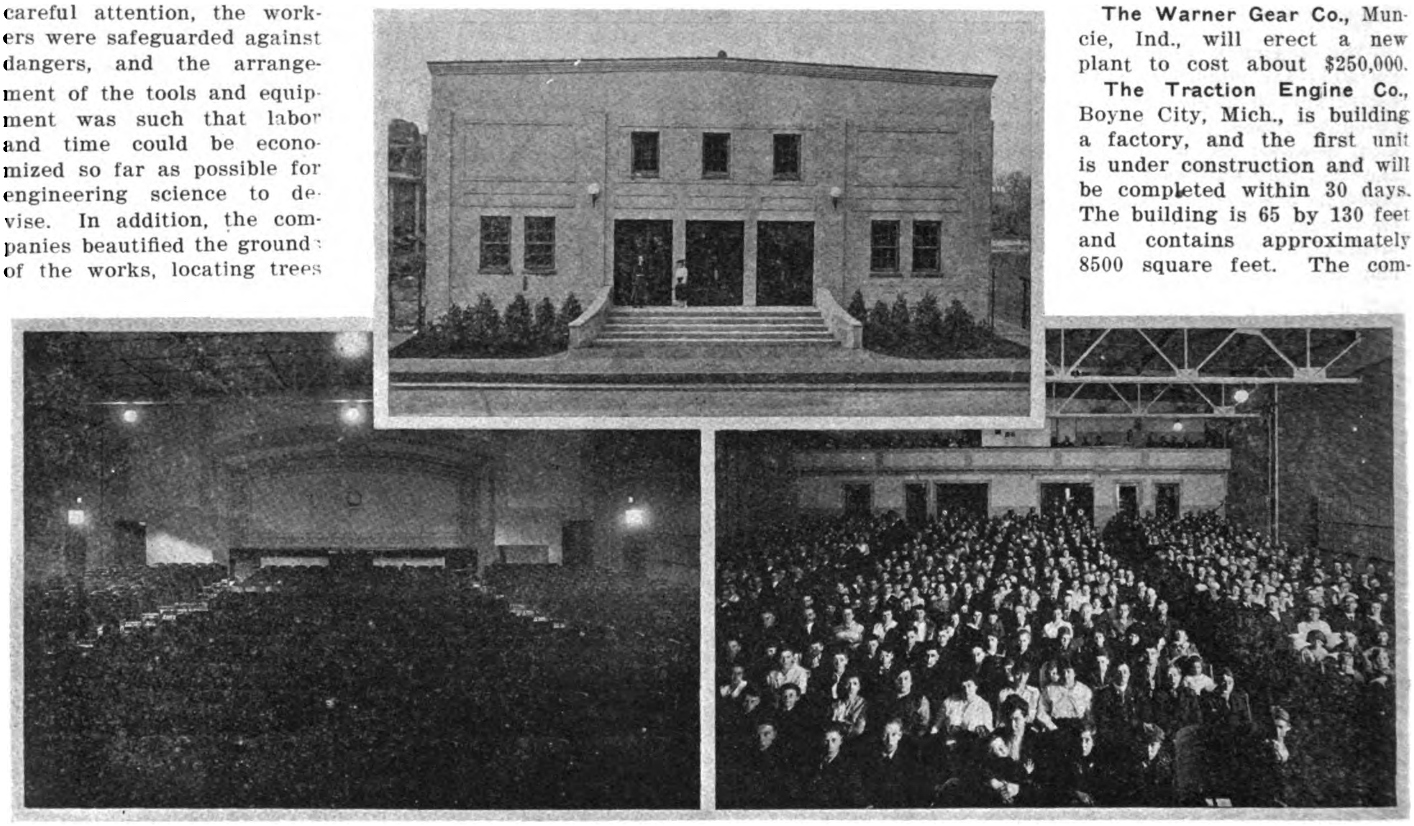
"The makers present felt that the holding of automobile shows would be inconsistent with the patriotic obligations of the industry.

"At its previous meeting, the N.A.C.C., working with the War Industries Board, voluntarily agreed to curtail production of passenger cars to 50 per cent. of the production of 1917, and recommended that all automobile companies take on war work as rapidly as it is obtainable."

News of the Motor Car Industry In Brief

The Clark Equipment Co. plant at Buchanan, Mich., which is designed to have high industrial efficiency, was originally operated by two concerns, owned by the same interests, and when the units were designed one of the main objects of the owners was to afford every condition and facility that would be essential to the convenience and comfort of the employees, as well as insure the largest degree of manufacturing productivity.

The buildings were constructed to be thoroughly lighted, heated and ventilated; sanitation was given careful attention, the workers were safeguarded against dangers, and the arrangement of the tools and equipment was such that labor and time could be economized so far as possible for engineering science to devise. In addition, the companies beautified the grounds of the works, locating trees and shrubs, with walks and drives so that the lawn would be protected. The purpose was to have the plant quite as attractive without as it was within. While the works have been expanded to meet the requirements of increased business, the environments of the buildings have been preserved.



The New Auditorium for the Employees of the Clark Equipment Co., Buchanan, Mich.; Above, the Front Entrance; at Left, Looking Toward the Stage from the Entrance; at Right, an Evening's Audience, Looking from the Stage.

But the welfare of the employees was still further considered, with the result that the company erected an auditorium at the plant that is in effect a part of the structures. Externally it is two stories high, and there are three wide entrances at the front which lead into an auditorium that is 86 feet deep and 56 feet wide, having a complete stage, amply lighted and provided with scenery to meet practically any requirement. Half of the floor is level, so that it may be used for athletic purposes. There are seats for 625 persons. Besides, there are retiring rooms for the men and women and the usual apartments required in such structures. The building is well lighted and ventilated and the furnishings are artistic. Included in the equipment is a moving picture outfit. The auditorium is now available for gatherings of different kinds, with weekly entertainments, one of the features being display of moving pictures educational in character, all of which are for the benefit of the employees of the works.

The McCord Mfg. Co., Detroit, Mich., is erecting a four-story addition to its plant. Three stories will be used for factory purposes and the fourth for offices. The new structure will cover an area of 134,000 square feet, which, added to the present plant, will give a total floor area of 319,000 square feet.

The Olds Motor Works, Lansing, Mich., has received a government contract for 2100 portable kitchen trailers for aviation service. New equipment is being installed for manufacturing the trailers and the turning out of the trailers will be started by Sept. 1.

The Reliance Motor Truck Co., Appleton, Wis., has received a large government contract for machine work on large calibre shells. Additional tools and other machinery is being installed. The company has just completed and equipped a new manufacturing plant at a cost of $75,000. It will still continue to prepare for a large production of commercial cars and internal spur-gear drive rear axles. Plans for another shop building are being prepared.

The Cleveland Tool Co., Cleveland, O., intends to expand and has let contracts for a large addition to its plant on Central avenue. The new structure will be two stories in height and will cost approximately $100,000.

The United States Rubber Co., New York, N. Y., reports net earnings for the six months ending June 30 of $10,242,365, after allowing for interest charges, depreciation and reserve for Federal taxes. The total earnings for the same period last year were $7,239,966.

The Warner Gear Co., Muncie, Ind., will erect a new plant to cost about $250,000.

The Traction Engine Co., Boyne City, Mich., is building a factory, and the first unit is under construction and will be completed within 30 days. The building is 65 by 130 feet and contains approximately 8500 square feet. The company manufactures kerosene-gasoline engines for tractors and trucks.

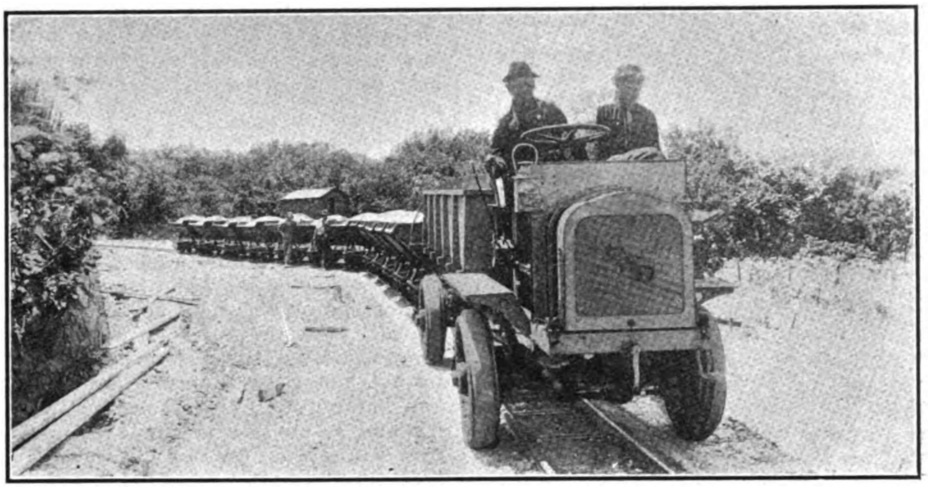
The Republic Rubber Co., Youngstown, O., has declared its regular quarterly dividend of 1¾ per cent. on first preferred stock, payable Sept. 1 to stockholders of record Aug. 25.

The Steel Products Co., Cleveland, O., will erect a one-story power house at 2196 Clarkwood road, southeast. The structure will be 45 by 70 feet and will cost $17,000.

The Oakland Motor Car Co., Pontiac, Mich., is planning to build motor trucks until the end of the war. The truck will be a one-ton model and production will begin immediately.

The Triangle Motor Truck Co., St Johns, Mich., has appointed the following new dealers as distributors of the trucks: C. C. Wright, Owosso, Mich Motor Car Service Co., 424 Michig Ave., Lansing, Mich.; Triangle Mo

And Happenings Among the Parts Makers



F-W-D Truck Used to Haul Trains of Side-Dumping Cars on an Industrial Railroad Track by a Western Road Builder.

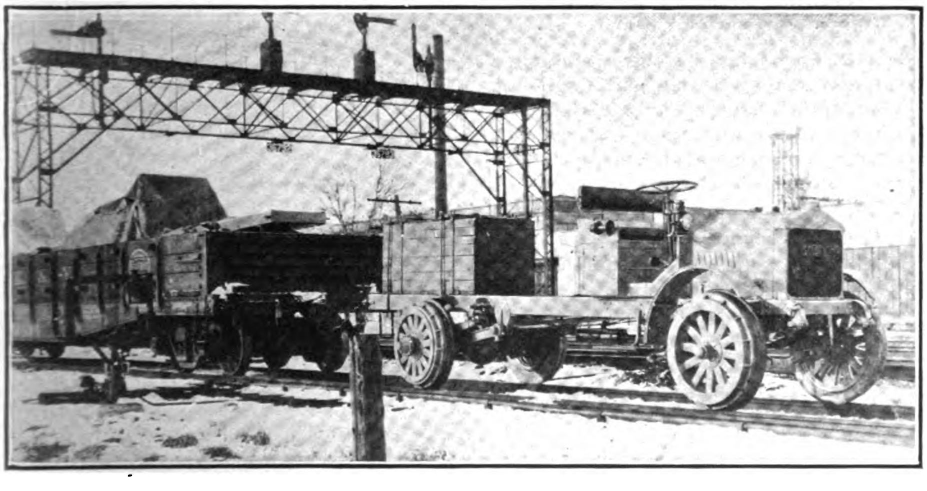
Truck Sales Co., 381 Fourth Ave., New York city.

The Dual Truck and Tractor Co., Decatur, Ill., is considering a location for a manufacturing plant and has opened offices. The company will manufacture a machine to be known as the Dual. The vice president is John K. Gumper. The machine has disk wheels mounted upon solid rubber tires, with arrangements for attaching by bolts tractor wheels, which fit over the rubber tires on the two rear wheels. It has a 38-horsepower engine and four speeds forward, and will plow in any kind of soil. The wheel base is 80 inches. With tractor wheels removed the machine resembles a roadster. The machine weighs 3500 pounds.

The Liberty Motor Car Co., Detroit. Mich., has received an order from the government for 2500 two-wheel trailers. The production of passenger cars for last month was 250 and is now averaging 10 a day at present.

The Pennsylvania Rubber Co., Jeannette, Pa., has declared the regular quarterly dividend of 1¾ per cent. on preferred stock and 1½ per cent. on common stock, payable Sept. 30 to stockholders of record Sept. 15.

The Continental Auto Parts Co., of Knightstown, Ind., has increased its capital stock from $10,000 to $50,000, and is making extensive additions to its plant, installing additional machinery and equipment to take care of its government contracts. The company manufactures a line of shop and factory equipment and it has been necessary to greatly increase production on the Continental Motor Stand, which is being used by the Department of Military Aeronautics, the Navy, Quartermaster's and Ordnance departments and the various manufacturers now making aeroplanes, trucks and tractors for the United States government.



Selden Truck Equipped with Flanged Wheels, Used for Switching Railroad Cars in and About the Selden Plant at Rochester.

The Duplex Truck Co., Lansing, Mich., has appointed the following new distributors: Duplex Truck Sales Agency, Denver; Sutcliffe Reo Auto Co., Waterloo, Ia.; Don Sales Co., Rock Island, Ill.; Wichita Auto Co., Wichita, Kan.; Greenlaw Truck and Tractor Co., New Orleans, La.; Linscott Motor Co., Boston, Mass.; Revada Sales Co., Reno, Nev.; Welfare Auto Co., Wilson, N. C.; A. H. Jones, Hastings, Neb.; West Side Motor Co., Hamilton, Ont.; Stapleton Motor Sales Co., Oklahoma City, Okla.; Northwest Auto Co., Portland, Ore.; Harrisburg Auto Co., Harrisburg, Pa.; B. L. P. Motor Co., Philadelphia, Pa.; West Penn Duplex Truck Co., Pittsburgh, Pa.; Grade Motor Co., Salt Lake City, Utah; Myers Motor Co., Lynchburg, Va.; Duplex-Wisconsin Co., Milwaukee, Wis.; Prawley Motor Car Co., Dallas, Tex.; A. A. Tillman & Co., Hancock, Mich.; J. W. Wetzel, Ackermanville, Pa.

The Dort Motor Co. of Flint, Mich., has increased its capital stock to $2,000,000. This represents an increase of over $500,000. The company had been capitalized at $1,500,000.

The Commercial Finance Corp. of Boston, Mass., has formed with a capitalization of $1,000,000 to finance the sale of motor trucks and tractors throughout New England and later on in other parts of the country. The board of directors comprises F. A. Hinchcliffe, Edward C. Becker and John L. Judd.

The Briscoe Motor Corp., Jackson, Mich., is enlarging plant No. 4 with a substantial addition. The large government contracts for munitions which the company received has made it necessary to expand the manufacturing facilities.

The Acme Motor Truck Co., Cadillac, Mich., has increased the size of its plant with the following additions which have been built this summer: Addition to assembly body shop, 65 by 96; heating and power plant, 46 by 80 feet; woodworking and body shop, 65 by 80; office, 80 by 118 feet; two washrooms, 12 by 30, and dining room, 13 by 46. Another addition to the body department will be erected.

The Field Mfg. Co., Owosso, Mich., is turning out 10 to 12 special motor truck bodies, which when fully equipped will be mounted machine shops for the repairing of airplanes in France. The bodies are being made under government inspection.

The Chicago Pneumatic Tool Co. is enlarging its plant at Cleveland, O., and plans to double the present output. Work on the building will be completed about Nov. 1.

Winther Motor Truck Co., Kenosha, Wis., has commenced the erection of the new plant. It will be of brick and steel construction, 150 by 350 feet, and with complete equipment will cost $125,000.

The Motor Mercantile Co., Salt Lake City, Utah, has organized and will manufacture tractors, trucks, motor car and shop equipment and parts. A. D. McMullen is president and general sales manager and V. A. Culver sales manager.

The Cell-Beam Manufacturing Co., 1101 Bedford avenue, New York City, is marketing the Cell-Beam searchlight direct from the factory through the jobbing trade. This will permit closer co-operation between the jobber and the manufacturer.

Activities of Prominent Men of the Industry

Emlen S. Hare, Elected Vice President of Packard Motor Car Co.

Emlen S. Hare has been elected vice president of the Packard Motor Car Co., as announced by Alvan Macauley, president and general manager. Mr. Hare will retain his position as president of the Packard branch in New York, but will remove to Detroit within a few weeks.

"Mr. Hare's successful experience, coupled with the fact that he is by nature a co-operator, will make him a valued addition to our organization," said President Macauley in announcing the election.

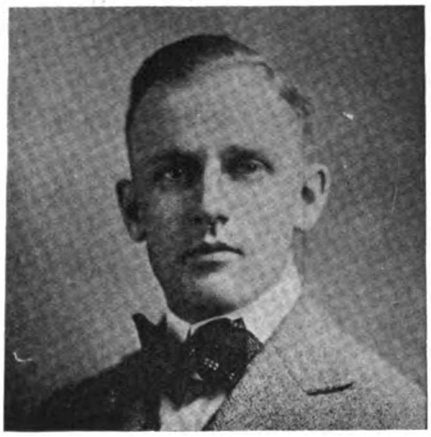
Emlen S. Hare's rise in the automotive industry, and particularly in the Packard company, is one of remarkable nature. He joined the Packard forces as recently as Jan. 1, 1916, in the capacity of special sales representative of both the New York and the Philadelphia branches. His success in developing national truck accounts, such as the telephone, express, oil and large mercantile business, so distinguished him that within six months he was given supervision of the truck department of the Packard Motor Company of New York. A month later he was promoted to general manager, and two months later was made president.

Wallace C. Hood, Partner in Foster-Hood Sales and Service Co.

Under his administration he increased the business of the Packard Motor Car Company of New York, expanded its organization of sub-branches for sales and service, developed its accessory business, reorganized its used car department, completed the Long Island service station and organized its staff, and, quite recently, met the war-born problems of the Packard's biggest branch with an insight and a forcefulness that singled him out for his latest promotion.

Glenn A. Sanford is now sales manager of the rim division of the Jaxon Steel Products Co.

Wallace C. Hood, formerly general sales manager of the King Motor Car Co., has joined with James Foster in the Foster-Hood Sales & Service Co., Detroit. They will conduct a garage.



B. H. Boensch, Manager of New York Branch of Bearings Service Co.

Bert B. Fornaciari has been appointed production manager and chief engineer of the Midland Motor Car & Truck Co., Oklahoma City. For nine years he was secretary and general manager of the Harvey Motor Truck Co., Harvey, Ill.

W. B. Burgess, formerly assistant to Mr. Fornaciari and in charge of cost, time and stores departments of the Harvey Company, has joined the Midland forces as assistant production manager.

R. M. Taylor has become purchasing agent for the Traffic Motor Truck Corp., St. Louis, Mo. He was for 17 years with the Banner Buggy Co. and the Chevrolet Motor Co., St. Louis, Mo.

L. S. Nold is now associated with the Mitchell Motors Co. as secretary and treasurer. He was formerly of the Electric Vehicle Co. and also the General Electric Co.

R. T. Hodgkins, for the past four years general sales manager of the Studebaker Corp. and previous to that connected with the Yale & Towne Mfg. Co., New York, has been appointed general sales manager of the Cleveland Tractor Co., Cleveland, O.

E. H. Broadwell, Member of War Service Committee of Rubber Assn. of America.

J. B. Bleiler has become associated with the Republic Rubber Corp., Youngstown, O., as special representative.

W. J. (Bill) Slater has resigned as pneumatic tire sales manager of the Firestone Tire and Rubber Co. to become general sales manager of the Williams Foundry and Machine Co., Akron, O., the largest makers of tire building and repairing equipment in the world.

Mr. Slater's connection with the Firestone company covers a period of several years, during which time he was successively manager of advertising, sales promotion and pneumatic tire sales.

W. J. (Bill) Slater, General Manager Williams Foundry and Machine Co.

L. W. Coppock is now general engineer and chief in charge of production of the Lane Motor Truck Co., Kalamazoo, Mich. He was formerly actively interested in the organization of the United Truck Co. of Grand Rapids and the Higrade Truck Co., Harbor Springs, Mich.

H. F. Eidt is now in active service in France. He was a former member of the sales department of the Continental Motors Corp. of Detroit. Mr. Eidt is also connected with the Harper Hospital unit of Detroit.

W. H. Armstrong has retired from the Mitchell Motors Co. and has taken an interest in the Armstrong Foundry Co., formerly known as the Holbrook-Armstrong Iron Co. Eight years ago Mr. Armstrong went to the Mitchell company as office manager. He has been elected president of the Armstrong Foundry Co.

F. L. Miller is associated with the Anderson Forge & Machine Co., Detroit, as metallurgist. He was formerly connected with the Mitchell Motors Co. of Racine, Wis.

Henry Abegg has been appointed to take charge of the radiator department and H. G. Wangolin in charge of the accessory department of the Modern Automobile Carriage Co. of Belleville, Ill.

Dr. Orrel A. Parker has been placed in charge of records under W. F. Parrish, chief of the oil and lubrication branch, supply section, in the office of the director of military aeronautics. He was formerly manager of the wheel department of the Hydraulic Pressed Steel Co., Cleveland, O.

W. F. Winkleman is now associated with the Heath-Duplex department of the McCord Mfg. Co., Inc. For the past 12 years he has been connected with the automobile business. Mr. Winkleman was formerly connected as special representative for the Liberty Motor Car Company.

George V. McMahan has been promoted to assistant general manager of the Remy Electric factory at Anderson, Ind. He was sales manager of the Detroit branch of the company.

William S. Wolfe Enters U. S. Motor Transport Service.

J. C. Manternach, President of American Welding and Mfg. Co.

Frank Jay has represented the Stanley car at Chicago for many years, as its middle Western representative, but is now located at Newton, Mass., where he has an important executive position at the factory.

J. M. Dempsey has been appointed sales manager of the Cincinnati Specialty Mfg. Co., Cincinnati, manufacturer of the Automatic Extension Reel. He was formerly with the Standard Tire & Rubber Co., Boston.

J. E. Nield, who was formerly of the Hudson and Saxon companies, has been elected second vice president of the Trego Motors Corp. of New Haven, Conn., of which he has been manager for some time.

L. Clyde Smith has been appointed assistant general manager and treasurer of the Detroit Waterproof Body Co., Pontiac, Mich.

C. A. Spear is now New York State division sales manager of the Selden Truck Sales Co., Rochester, N. Y. He succeeds L. S. Hallowell, who has become connected with the Philadelphia Selden sales agency.

Guy W. Morgan, former president of the Abbott Motor Corp. in Detroit, and who was in charge of the spare parts, tires and accessories for the original motor transport section of the United States army, has been appointed to similar duties under Colonel Glover in the new motor transport service.

E. S. Lee, Jr., has entered the service as first lieutenant in the motor transport service division and is stationed at Camp Holabird, Maryland. He was sales manager of the United States Motor Truck Co.

W. O. Kennington, who was assistant chief engineer of the Remy Electric Co., Detroit, has returned from the war front, where he is connected with the British Air Ministry.

J. J. Wright has been promoted to manager of the St. Louis branch of the Ford Motor Co. For the past two years he was manager of the branch at Memphis. Mr. Wright succeeds W. C. Anderson, who has been made manager of the assembly plant at Chicago. C. S. Williams of the Louisville branch becomes manager at Memphis. W. R. Johnson will continue as assistant manager in St. Louis.

W. V. Logan is awaiting a call to service in the Naval Aviation branch. He will be trained at the Great Lakes Station. He was formerly in the Goodyear Tire & Rubber Co. service in St. Louis and later a traveler for the same firm in Europe.

J. H. Morrill is now assistant chief engineer of the Buda Co., Harvey, Ill. He was formerly in charge of the engineering department of the Northway Motors Co., Detroit.

H. B. Garman has been appointed plant manager of the Michigan plant of the Steel Products Co. Mr. Garman was formerly superintendent of the Detroit factory.

A. W. Voege is now assistant to the general manager, Maurice Rothschild, of the Regal Motor Car Co., Detroit, Mich. After the war the company will reorganize to manufacture Regal automobiles again.

J. C. Manternach, formerly manager of the rim and tube division of the Standard Parts Co. of Cleveland, is now president of the American Welding and Mfg. Co. of Warren, O.

William S. Wolfe, assistant chief experimental engineer of the Goodyear Tire and Rubber Co., Akron, O., has entered the service of the maintenance division of the U. S. Government Motor Transport Corps, with headquarters at Washington, D. C. His six years' experience in tire development with the Goodyear company well equips him for his present duties in assisting in looking after the maintenance of all tires, rims and wheels in the Motor Transport Service.

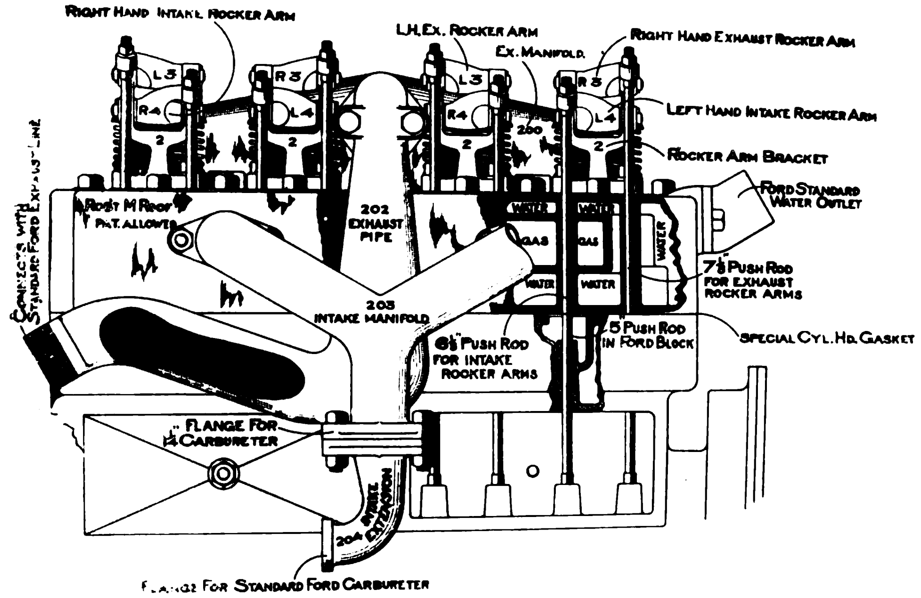
John P. Franck has recently been appointed sales manager of the Guide Motor Lamp Mfg. Co., Cleveland, O. Mr. Franck, who was formerly in charge of sales in the automobile field for the Cleveland Varnish Co., Cleveland, O., will have entire supervision over the marketing of Guide Lamp products.

John P. Franck, Sales Manager of the Guide Motor Lamp Mfg. Co.

Laurel Motors Brings Out New Roof Sixteen Valve Cylinder Head

Robert M. Roof, mechanical engineer for the Laurel Motors Corporation, has designed a new 16 valve cylinder head for Ford motors especially adapted for touring car and it will be known as type B. Type A, which is the original 16 valve cylinder head designed for Ford by Mr. Roof, first came into prominent notice through the wonderful power and speed given to Ford racing cars by the use of the 16 valve head, and wonderful track records were made by Ford cars with the type A equipment. It is also used with great success on trucks and is now used to a large extent on touring cars, but it is more particularly adapted for speed work. The demand by Ford touring car owners for 16 valve head carrying features not embodied in type A caused Mr. Roof to design the new model type B, illustrations of which are shown herewith. Radical changes have been made in type B as compared with type A, and many of them will appeal quickly to the Ford touring car owner.

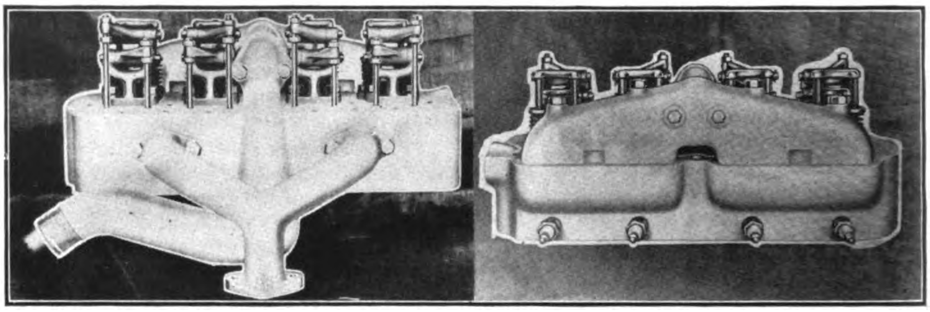
In constructing type B care was taken to provide the cylinder head that was not only easy to install, but simple in adjustment, and with easy access to all moving parts so that the Ford owner could not only install the head with little or no trouble, but could make adjustments whenever necessary without calling on expert assistance. The arrangement for passage of gas in cylinder block is nearly perfect and condensation almost impossible. Gas is distributed to cylinders by Y shaped manifold with sub divided channels in cylinder head instead of through the regular intake and exhaust openings in the cylinder block as is the case in type A. Regardless of the firing order of the cylinder the mixture in type B is distributed equally to each cylinder and most exhaustive tests show it is almost impossible to load the motor at any speed.


Right Hand Intake Rocker Arm
L.H. Ex. Rocker Arm
Ex. Manifold
Right Hand Exhaust Rocker Arm
Left Hand Intake Rocker Arm
Rocker Arm Bracket
Ford Standard Water Outlet
L3
R3
R4
L4
2
200
Robt M Roof
Pat. Allowed
202 Exhaust Pipe
Water
Gas
7⅛ Push Rod for Exhaust Rocker Arms
203 Intake Manifold
6⅝ Push Rod for Intake Rocker Arms
5 Push Rod in Ford Block
Special Cyl. Hd. Gasket
Connects with Standard Ford Exhaust Line
Flange for 1¼ Carburetor
204 Intake Extension
Flange for Standard Ford Carburetor

Detailed Drawing of Roof Head Showing Its Application to Ford Block.

In type A the spark plugs are located directly on top of combustion chamber, while in type B the spark plugs are located on exhaust side, but with explosion direct into combustion chamber. Provisions are made for direct priming into cylinders and great precautions have been taken against any chance for overheating. Not only are the water jacket spaces extra large size, but all spark plugs are surrounded by water jackets. Each exhaust is carried off separately and ample water space provided between, which eliminates any possibilities of valve warping. Air leaks of any character into the mixing chamber through push rod guides are entirely eliminated, as the push rods operate through bosses not connected with mixing chamber, as was the case with type A.

Where speed is desired loose push rods are of little consequence, in fact the additional air through loose push rods is of advantage in speed work. As there is but little or no chance for air leaks in type B, throttling down the motor to very low motor speeds is insured. There are no abrupt curves to cause back pressure either in intake or exhaust. Great attention has been given to securing evenness in the thickness of cylinder head walls, which will prevent irregular contraction and expansion and thereby increase the thermal efficiency of the head. Water outlet on cylinder head and connection with exhaust pipe are regular Ford standard. Cylinder head water jacket is so designed as to eliminate all chances for steam or air pockets, the outlet being at the highest point. The exhaust manifold is designed not only to connect with Ford exhaust pipe on same side as intake, but also to heat the intake manifold at the proper point and every advantage claimed for hot spot manifold are enjoyed by the Ford motor owner with the new designed type B head. Provision is made on intake manifold for either the regular Ford one-inch carburetor or any standard 1¼-inch carburetor, and installation can be made without interference with nearly all electric lighting and starting systems for Fords.


Right and Left Side of Type B Sixteen Valve Cylinder Head for Ford Engines.

Type A will be continued for speed purposes and will be known as the racing 16 valve head and will also be sold for use with truck units, while type B will be sold for touring car service and to some extent for use in connection with truck units. Nearly all tests with type B were made with a Ford sedan and the pulling power and hill climbing ability were shown to be fully equal to the type A and the sedan could be throttled down to a few miles per hour on high gear and a speed of more than 50 miles per hour was quickly reached and maintained.

The company already have a great many orders on their books for the new head from agents, several of the contracts being of very large size. The Guaranty Motors Co., Cambridge, Mass., manufacturers of truck units and hoists for Fords, are adopting the Roof 16 valve head as standard equipment to go with their two-ton truck units.

The price of type B cylinder head will be $100 complete, including manifolds, plugs and wires.

FIND SHORT MEASURE GASOLINE PUMPS IN N. H.

A crusade has been started in New Hampshire to discover the cause of the many complaints on the part of motorists that they are victimized by gasoline dispensers, and the commissioner of weights and measures of the state has called in the services of all the men in his department to inspect the 4000 gasoline pumps throughout the state.

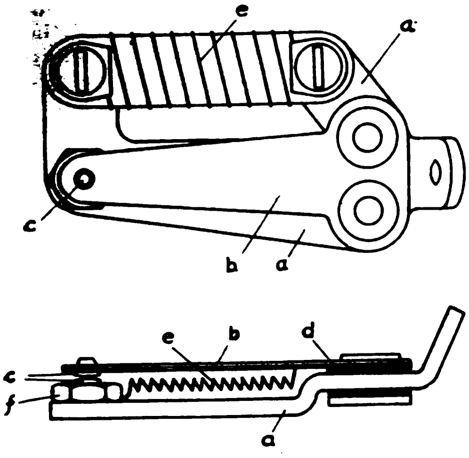
Thermostatic Control of Generator Charging Is Developed by Remy.

By GEORGE V. McMAHON,

Assistant General Manager Remy Electric Co.

It is a matter of common knowledge among motorists that more current is required for lights and for the starting motor in the winter than in the summer, and as a result the battery is often in a drained condition. The condition of the roads and streets in winter is such that cars are driven more slowly, and again the battery suffers if special provision is not made to keep the battery charged.

The problem of supplying a high charge rate to meet the demands of winter driving would be simple if the battery were capable of standing up under a continuous high rate of charging.



When a battery is being charged its temperature tends to rise above that of the surrounding atmosphere. The higher the charge rate and the more nearly charged the battery the greater the increase of temperature produced. The effect of this increase of temperature is to evaporate the water from the battery, and if carried too high to cause shedding of the active material of the plates, thereby reducing the capacity and greatly shortening the life of the battery.

With a reduction in the demands for current for lights and starting in the summer the battery is in a more nearly charged condition, and as the atmospheric temperature is higher, the charge rate must be lower if the battery is to be kept from overheating.

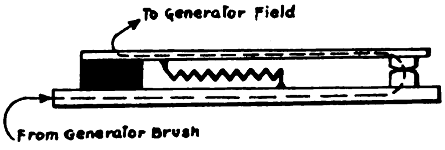
To meet this variation in demand for current the Remy generator has been designed for large current capacity and provided with a thermostat control, which automatically reduces the generator output to a safe value for summer conditions.

The designers of the Remy thermostat control have taken advantage of the fact that generators, as well as batteries, produce heat in a definite relation to the rate of current flowing, and that the temperature attained in the generator is furthermore dependent on the prevailing atmospheric temperature.

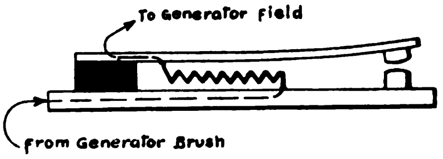
A simple and positive acting thermostat has been mounted on the brush rigging in a position where the effects of atmospheric temperature and the heat produced in the generator windings are averaged.

Mechanically, the thermostat is constructed as illustrated.

A stamped steel bracket carries a resistance unit, a silver contact point and a thermal blade, insulated from the bracket and carrying a second silver contact point.

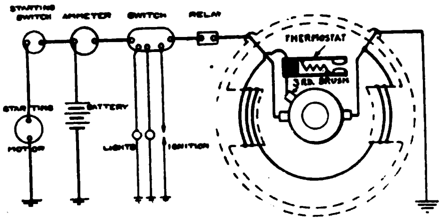


THERMOSTAT CLOSED



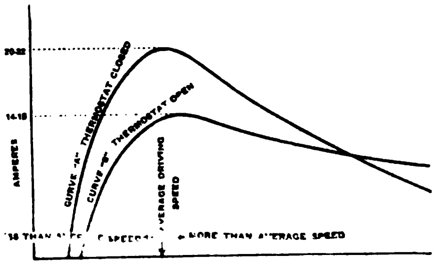
THERMOSTAT OPEN

The contact point in the thermal blade is held against the similar contact in the bracket, by the spring tension of the blade itself at low temperatures. The blade is, however, made of a strip of spring brass welded to a strip of nickel steel—a combination which warps when heated, due to the greater expansion of the brass. Thus the contacts are separated by the bending of the blade whenever the thermostat is heated to approximately 175 degrees Fahrenheit.



REMY
PATENTED GENERATOR

It will be seen from the illustration above that when the thermostat is closed the field current takes the low resistance path through the contact points, but when the thermostat is open the field current is forced to go through the resistance unit. By this automatic insertion of resistance in the field current the generator output is reduced to a predetermined value.



To illustrate the operation of the thermostat by referring to the curve in accompanying cut it will be seen that at normal speed the generator output will be 21 or 22 amperes after starting with a cold machine. With atmospheric temperatures around 70 degrees Fahrenheit the thermostat will open after two or three miles, which is sufficient time to make up for the amount of energy taken from the battery in starting. When the thermostat opens the output will drop to 14 to 15 amperes at average driving speeds. In very hot weather the thermostat will open much quicker. In extremely cold weather the thermostat will remain closed, insuring the continuous high generator output needed to meet the increased demands made by the starting motor, and the increased burning of the lights.

In addition to correcting the discrepancy between winter and summer demands for current, the thermostat control makes it possible to keep the battery fully charged under unfavorable conditions, such as an exceedingly large number of starts, and use of the car mostly for night driving.

This thermostat control is supplementary to the well known third brush regulation, which keeps the charge rate from rising above the predetermined maximum of 20-22 amperes for a cold generator when the car is operated above average driving speed.

STEVENS "WAR TIME ECONOMY" CATALOGUE.

At a time when the motorist and dealer are squaring up their purchases with war time economy—avoiding frills and adhering strictly to accessories that make for increased efficiency and comfort in motoring—a catalogue like that now being issued by the house of Stevens & Co., 375 Broadway, is of unusual merit and timely interest.

More than 200 motor necessities are interestingly described in the new Stevens book, which is replete with bright and informative illustrations. There are 64 pages devoted entirely to Stevens products and among these accessories for Fords are prominently displayed. A copy of this new catalogue will be mailed to any dealer on request.

GEAR MANUFACTURERS WILL HOLD MEETING NEXT MONTH.

The semi-annual meeting of the American Gear Manufacturers' Association will be held at the Onondaga Hotel, Syracuse, N. Y., Sept. 19, 20 and 21. Announcement of the program will be given later.

Design and Construction of U. S. Two-Stage Air Compressor

The United States Air Compressor Co. of Cleveland, O., manufacture a complete line of air compressors in both the two-stage and single-stage types, comprising 20 different units. These units vary in capacity from 1½ cubic feet to 21 cubic feet per minute, and are capable of maintaining pressure up to 500 pounds.

The manufacturers claim that unusual efficiency is obtained by utilizing the two-stage principle. In support of this claim the experience of millions of automobile drivers is cited as evidence that the two-stage principle is superior to that of the single stage.

It is well known that whereas single cylinder hand pumps were in general use a few years ago, it is a very rare sight to see one now. This remarkable evolution is claimed to have been brought about by the superior construction of the two-cylinder (two-stage) hand pumps. It has been pointed out by the manufacturers, however, that in the design of U. S. two-stage air compressors, one weakness of the two-stage hand pump, namely, the stuffing box, has been completely eliminated; furthermore, their machine is improved in 14 important details.

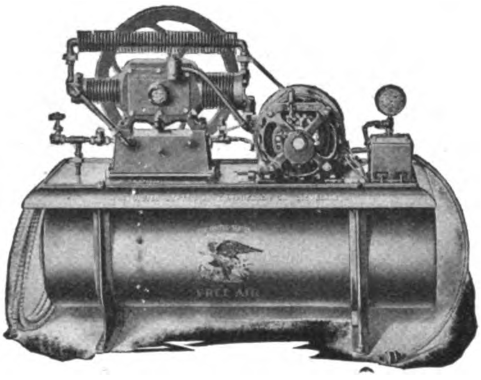
The operation of their United States two-stage air compressor is explained as follows:

One of the principal efforts of machinery designers is in the direction of eliminating resistance. The greater the resistance in any machine the lower the efficiency.

An air compressor continually operates against resistance and the unprecedented success of the United States two-stage compressor has been due to the fact that resistance has been reduced to the very minimum with a relative increase in general efficiency.

An air compressor must overcome the tank resistance at each impulse or its efforts are of no avail A single-cylinder (single stage) compressor takes air in at atmospheric pressure and forces it direct into the tank. The greater the diameter of the piston the greater the resistance to be overcome and the greater the possibility for piston leakage.

Now contrast this with the operation of the United States two-stage compressor: As the piston in low pressure cylinder moves to the left it takes air in at atmospheric pressure. On its return this air is forced through inter cooler into high pressure cylinder, being raised to 40 pounds pressure, the first stage. This piston now "steps up" the air again to a very high pressure twice; a small diameter piston instead of a large one works against the tank pressure; two power impulses instead of one are attained at each revolution; the crank is balanced between two bodies of air, which gives a cushioning effect, reducing the noise and vibration to a minimum.



U. S. De Luxe Two-Stage Air Compressor.

A catalogue describing the complete line of United States air compressors will be sent to any one who writes the United States Air Compressor Co., Carnegie Ave., Cleveland, O.

UNITED STATES NOW MAKES ITS OWN CASTOR OIL.

The scarcity of castor oil, which for a time loomed large as an obstacle to this country's ambitious airplane programme and also seriously threatened the production of important leather substitutes, has been successfully overcome, according to recent government announcement.

When the insufficiency of the castor oil supply became apparent, 6000 tons of castor beans were imported and planted last spring in sections of eight southern states, California, Cuba, Hayti and San Domingo on government contracts. The result has been exceedingly gratifying, as the crop to be harvested next month will net more than 2,000,000 gallons of first grade oil. This amount added to the supply on hand will fill all industrial and medicinal needs for a year.

Castor oil is an essential factor in the building of airplanes with rotary motors. Hundreds of such machines are on the building schedule and motors of this type must have castor oil for a lubricant.

Thousands of gallons of castor oil are used yearly in the making of leather substitutes of the pyroxylin coated type, which since the outbreak of the war have performed invaluable service in releasing leather for the country's vital military requirements. The success of the experiment of planting castor beans in this country adds another paying crop to the list in the sections named, and, in all probability, in adjoining areas. It also relieves the United States of the necessity of depending on imports for its supply of castor oil.

PURITAN MACHINE CO. WILL HANDLE ALCO REPAIR PARTS.

The American Locomotive Co., which formerly manufactured the Alco passenger cars and trucks, has sent out a circular stating that the entire spare parts business and stock of parts for these models have been sold to the Puritan Machine Co. of Detroit. The circular letter, which was signed by President Andrew Fletcher, reads as follows:

"When this company discontinued the manufacture and sale of automobiles and trucks an announcement was made that the company would arrange to furnish owners of "Alco" vehicles with repair parts for a period of five years. This period elapsed on Aug. 13, 1918.

"The demand for repair parts is still sufficiently large to warrant the continuation of the spare parts business, but the necessities of the locomotive business of the company are such as to make it advisable to dispose of the repair parts business to other interests. The company has accordingly sold the entire spare parts business, including the existing stock of parts, to the Puritan Machine Co. of Detroit, Mich., which has entered into an agreement with this company to supply "Alco" vehicle owners with spare parts for a further five years period ending Aug. 13, 1923.

"The Puritan Machine Co. for the past ten years has been engaged exclusively in the service repair parts business and is now handling repair parts for 164 different makes of motor-driven vehicles, and 'Alco' owners can be assured of prompt and efficient service in the future.

We are informed by the Puritan Machine Co. that orders for spare parts may be sent for the present to the following: Puritan Machine Co., at Providence, R. I.; International Motor Company, New York city, and Ralph J. Chandler, Los Angeles, Cal."

CONAPHORE LENSES FOR PIERCE-ARROW CARS.

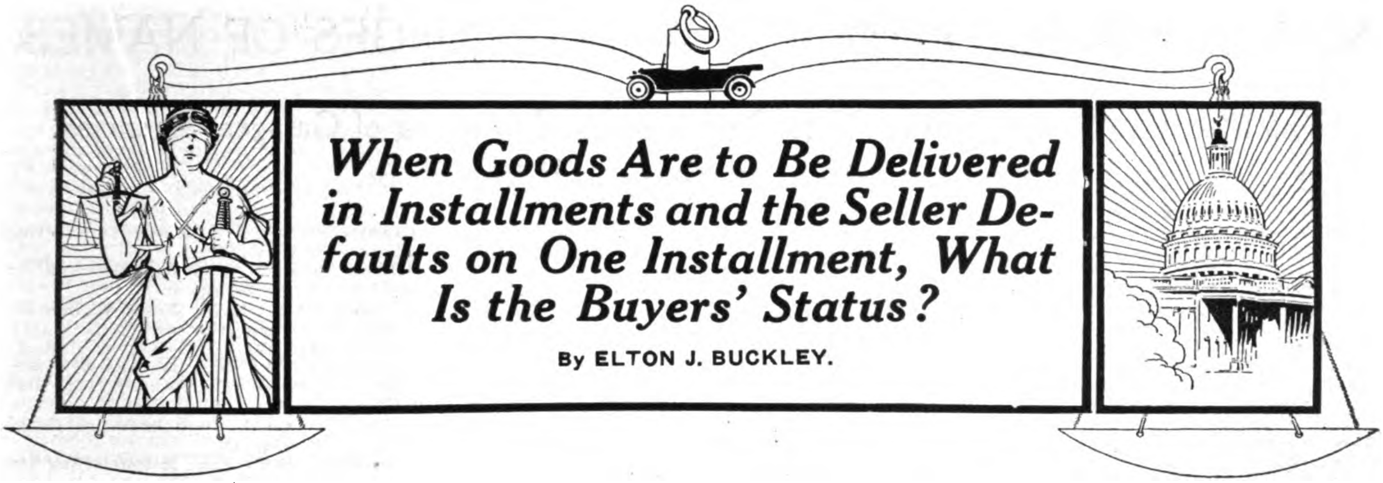
The Edward A. Cassidy Co. of New York City has announced that the Pierce-Arrow Motor Car Co., Buffalo, N. Y., will use Conaphore headlight lens, made by the Corning Glass Works, Corning, N. Y., as standard equipment on its passenger cars. The Cassidy company is exclusive wholesale distributor of Corning lenses.

EARNINGS OF PIERCE-ARROW MOTOR CAR CO. INCREASED.

The net operating profits of the Pierce-Arrow Motor Car Co., Buffalo, N. Y., for the three months ending June 30 were $1,523,421, or $220,045 over the earnings for the corresponding period of 1917.

CONTINENTAL GUARANTY CORPORATION DIVIDEND.

The board of directors of the Continental Guaranty Corporation on July 22, 1918, declared a dividend of two per cent. for the quarter ended June 29, 1918.



When Goods Are to Be Delivered in Installments and the Seller Defaults on One Installment, What Is the Buyers' Status?

By ELTON J. BUCKLEY.

A CLIENT of mine last March made a contract with a New York concern to deliver him 600 dozen of a certain commodity, 200 dozen to be delivered about the middle of June, 200 dozen about the middle of July and 200 dozen about the middle of August. When the time for delivery of the first installment came the market had advanced somewhat, and the seller found it easy to say that under manufacturing conditions which he could not control, he couldn't deliver the June installment, but "might" be able to deliver the remaining installments. As the market had advanced the buyer wanted the balance of the contract, though he protested against the non-delivery of the June installment.

But by the time the July installment was to have been delivered the market had declined, and the seller was more anxious to deliver and the buyer less anxious to receive. The question was submitted: What is the right of the buyer to consider the contract broken by the seller, and thus cancelled? If the buyer still had the right of cancellation, he could save several hundred dollars, which of course, as it turned out, would be at the expense of the seller.

I have no doubt that substantially this question is arising today in thousands of contracts involving the delivery of merchandise in installments, a common way of selling goods in many lines. If the seller defaults in the delivery of one installment, can the buyer declare the contract off as to the whole? The question cannot be answered in a word. Sometimes he can and sometimes he can't.

The law which gives the buyer protection when somebody who has sold him merchandise fails to deliver it, is thus summed up in a leading case:

"The buyer may rescind (cancel) the contract of sale when there has been a breach of the contract or of a condition thereof by the seller, provided the breach is in some substantial particular which goes to the essence of the contract, and renders the defaulting party incapable of performance or makes it impossible for him to carry out the contract as intended. Not every slight or partial dereliction of one party will entitle the other to rescind or abrogate a contract. A mere mistake on the part of the seller in carrying out his part of the contract not prejudicial to the buyer, as by delivery of the wrong article, or mistake in the terms of payment, does not justify a rescission. The conduct of the seller must be such as to show a disposition or intent to repudiate the obligation of the contract, as when the seller disposes of the property to a third person, delivers something entirely different from that agreed to be delivered, or refuses to adhere to the original terms of payment."

If you are in need of legal advice, if you want first-class professional service at no cost to yourself, address a letter to Mr. Buckley, in care of the Legal Department of the Accessory and Garage Journal, detailing the issues as clearly as possible. By special arrangement with this journal he will give immediate answer, either on this page for the benefit of other subscribers who may have the same trouble, or direct by mail as the inquirer specifies. Sign full name for the purpose of correspondence, not for publication. This service is free to subscribers to this magazine.

The court, however, will not always allow the buyer to cancel the contract merely because the seller fails to deliver exactly according to terms. Read this, from another leading case:

"The buyer may rescind if the seller fails to make delivery of the goods in accordance with the terms of the contract. If, however, the failure to deliver is due to no fault of the seller, there can be no rescission. When delivery is to be made in installments, a failure to deliver an installment will not ordinarily be ground for rescission, although under particular circumstances it may furnish evidence of an intention not to be further bound by the agreed terms of the contract. But if there is a failure of delivery as to the first installment, or the failure to deliver is a continuing one, the buyer may rescind."

"Now let me apply this to the case cited in the first few paragraphs. It is clear that when goods are sold to be delivered in installments, the failure to deliver the first installment is a cancellation of the whole contract—provided the buyer wishes to so consider it. He can waive his right to so consider it, however, and keep the contract alive, as very frequently he will do if he is anxious for the goods at the contract price. How can he waive his rights? By failing, I should say, to clearly let the seller know at the time that he considered failure to deliver a cancellation of the contract. I advised my client that his right to cancel disappeared when he let the seller know, quite clearly, that he wanted the balance of the goods. He thus elected to keep the contract alive.

Failure to deliver an intermediate installment does not necessarily give the buyer the chance to cancel, although it may. It depends on how it is done. If it happens because the seller is tied up or has trouble with his freights, etc., then I should say that the buyer would have no right to cancel the contract because of that. But if it happened as it did in another case known to me, the conclusion would be different. In that case the market went up between the delivery of the third and fourth installment, and the seller, reluctant to deliver at a loss, let the date for the fourth installment go by without delivery. The buyer, although the market had advanced, was for a certain reason more than glad not to take the goods, and under advice of counsel, promptly cancelled the contract. Later the seller decided he wanted to deliver, but the court decided, when the matter got in there, that the manner in which he defaulted on the fourth installment indicated an intent to throw the contract down, which gave the buyer the right to declare it cancelled.

(Copyright, August, 1918, by Elton J. Buckley.)

ILLUMINATING ENGINEERS WILL DISCUSS HEADLIGHT PROBLEM

The Illuminating Engineering Society will hold its annual convention at the Engineering Societies Building, 29 West 39th St., New York city, Oct. 10, 1918.

Wartime lighting economies, the use of better lighting in speeding up war production and manufactures, the lighting of camps, effect of lighting curtailment on crime and automobile headlight legislation will be among the subjects to be discussed by lighting authorities.

NEW BUSINESS CONCERNS AND CHANGES OF NAMES.

The Month's Record of Transfer of Ownerships and Opening of Garages, Agencies, Branches, Service Stations and Repair Shops.

RECENT TRANSFERS OF BUSINESS OWNERSHIPS.

Fort Smith, Ark.; H. C. Eller is now sole owner of the Inter-State Garage and the Inter-State Oil Co.

Downey, Cal.; A. L. Nichols has purchased the Downey Garage.

Madera, Cal.; The Economy Garage has been purchased by R. Merino. It is located on South D St.

New Monterey, Cal.; J. M. Bussey has repurchased the garage at 425 Lighthouse Ave. and has adopted the name of Bussey's Garage.

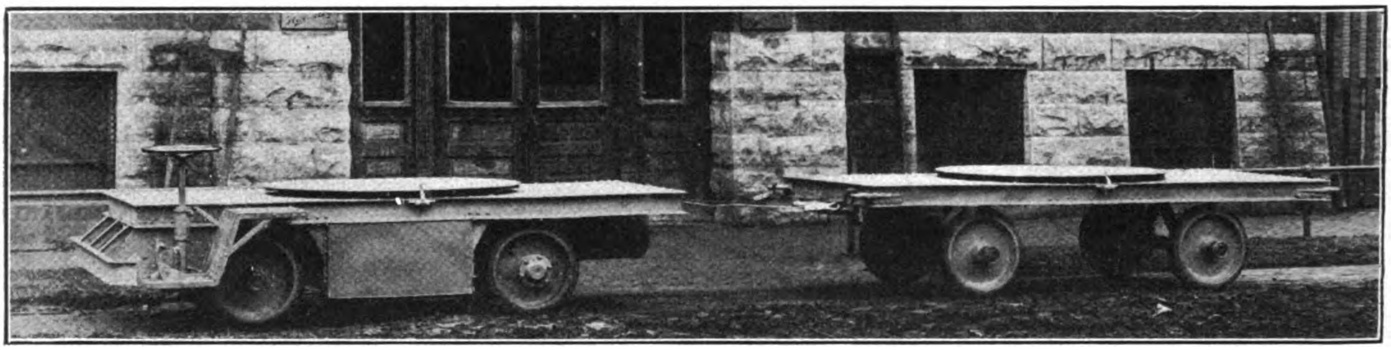
Pasadena, Cal.; R. E. Sherman has purchased the De Luxe Tire Co. stock of tires.

San Mateo, Cal.; A. F. Marquis has purchased an interest in Zehender's Garage.

Stockton, Cal.; N. E. Owens has formed a partnership with R. W. Davis and the firm has opened a repair shop at 218 East Channel St.

Castana, Ia.; Otto Quandt has bought the Gingles Garage.

Des Moines, Ia.; Hunter Bros. have purchased a half interest in the Waterloo Auto and Supply Co., distributors for the Chandler, Oakland, Premier and Republic trucks.



Electric Tractor and Trailer with Platform Turntables, Designed for the Use of a United States Navy Yard, for Hauling Long Structural Steel of Heavy Weight.

Greene, Ia.; William Heater has disposed of the interest in the firm of Heater Scott.

Greene, Ia ; William Heater has sold his interest in the garage business to his partner, J. E. Scott, who will manage the business.

Guthrie Center, Ia.; F. W. Schlotterbeck has bought an interest in the Wilson Bros. Garage.

Le Mars, Ia.; P. M. David is sucessor to F. A. Berner.

Palo, Ia.; F. J. Pickreill has bought the P. H. Peterson Garage at Ryan, Ia.

Pringlar, Ia.; J. E. Sumney has bought the interest of Leo Mills in the Pringlar Auto Co.

Springville, Ia.; R. F. Wiley has bought the interest of H. N. Worral in the local Ford agency.

Abilene, Kan.; James A. Amess has purchased the vulcanizing tire repair shop of R. E. Goure.

Arcada, Kan.; C. Mason has bought the interest of his partner in the firm of Mason and Walker.

Baxter Springs, Kan.; M. E. Bollington has bought the City Garage.

Belleville, Kan.; Carey & Reed have dissolved partnership. The business will be operated under the name of J. A. Reed.

Belpre, Kan ; Andy Hager has bought the Belpre Garage, formerly owned by H. Goodell.

Bern, Kan.; B. Shute has bought the garage of F. C. Grossenbacher.

Liberal, Kan.; Davin Curtis has purchased a half interest in the Overland Garage of Charles Molter.

Pratt, Kan.; B. H. Arnold has purchased an interest in the J. E. Fraizer & Arnold. The new firm will be known as the Fraizer & Arnold Co.

Detroit, Mich.; The Puritan Machine Co. has taken over the complete service of the Alco cars and trucks, formerly made by the American Locomotive Co.

Sault Ste. Marie, Mich.; Dixie Garage has been purchased by the Booth Bros. at 119 Arlington street and they wll continue to run it as an automobile repair shop.

Hebron, Minn.; Herman Weber has purchased the interest of Carl Corg in the Red Trail Garage.

Bethany, Mo.; W. E. Bell has bought the Interstate Tire Shop from S. W. Gault.

Clinton, Mo.; The Amesbilt Motor Co. has changed its name to the Palen Motor Products Co.

Frederickstown, Mo.; N. F. Whitener has bought the Madison Automobile Co.

Hannibal, Mo.; Henry Reidell has taken over the management of the E. C. Long Garage.

Kingston, Mo.; J. Samuel Stone has purchased A. L. Houghton's Garage.

Alliance, Neb.; Walter Overton has purchased the Martin-King Garage.

Alliance, Neb.; James Pierce has bought the garage of Schwabe Bros.

Brainerd, Neb.; Joseph Sypal has purchased the garage of Olson Bros.

Carrol, Neb.; Lee Gibson has bought the West Garage.

Deshler, Neb.; Ed Luedke has bought the interest of Folly Franzen in the Deshler Garage.

Eagle, Neb.; Claude Barrett has bought the Eagle Garage from Frank Lanning.

Hildreth, Neb.; E. E. Huffman has bought the interest of his partner in the Blank & Huffman Garage.

Hooper, Neb.; Anton Tunberg has purchased the interest of his partner in the firm of Tunberg & Reetz.

Jackson, Neb.; Horace Dugan has purchased the Jackson Garage from Herbert Kinney.

Obert, Neb.; Gene Conrad has bought the interest of Arch B. Grantham in the Obert Garage.

Omaha, Neb.; R. A. Malvern has bought the Delco Exide service station from L. Hiller.

Palisade, Neb.; G. H. Taibert has bought the Wilson Garage.

York, Neb.; J. C. and J. W. Myers have bought the York Tire and Repair Co. from Mathiesen & Martin.

Elgin, Okla.; J. H. Hansen has sold the Elgin Garage to Charles G. Griffin.

Granite, Okla.; B. C. Caddel is successor to Frank Polaski.

Miami, Okla.; M. E. Billingslee has purchased the City Garage.

Norman, Okla.; P. V. Winstead has purchased the Wilson Garage.

Philadelphia, Pa.; The Selden Philadelphia sales agency has purchased a large garage and sales office at 3427-29 North Broad St.

Belton, Tex.; J. V. Dickenson has bought the Main St. Garage.

Corsicana, Tex.; J. S. Mitchell has purchased the Larrison Garage on West Third Ave.

Spokane, Wash.; The Sunset Motor Co. has bought the Eastman Motor Co., West 1124 Sprague Ave. A. B. Shirley is the manager and has established an office at West 1212 First Ave.

Juda, Wis.; R. C. Wichelt has sold his machine shop to I. D. Johnson.

Mount Horeb, Wis.; James Anderson has sold his interest in the Mt. Horeb Auto Co. to Peter Heuser.

Phillips, Wis.; E. A. Drott and G. W. Beach have taken over the G. O. Winkler Garage.

Sauk City, Wis.; T. H. Wells has bought the Up-to-Date Auto Co. Garage and will do all kinds of automobile repair work and store cars.

Shell Lake, Wis.; Fay Mead has bought the Allen Garage, which was formerly owned by E. H. Allen.

FACTORIES, GARAGES AND REPAIR SHOPS.

Campbell, Cal.; E. L. Smith and A. R. Smith have established Smith's Tire Shop.

Monterey, Cal ; The Noggle Electric Works has erected a new building to be devoted to electrical work.

Moutain View, Cal ; The Reliance Garage and Machine Shop has opened.

San Francisco, Cal.; Edward St. Superv has erected a new garage at 1530 Fell St. It is 50 by 175 feet, modern and fireproof.

San Jose, Cal.; The Reliable Tire Repair Shop has opened at 151 East Santa Clara St.

San Mateo, Cal.; J. R. Gibson has opened a tire store and vulcanizing shop at 51 B St.

Stockton, Cal.; The Best Tire Shop has opened at 146 North California St. Lee Fletcher is in charge.

Stockton, Cal.; Smith & Scott have opened a Ford repair shop at 145 West Channel St. and will sell parts and supplies.

Macon, Ga.; H. J. Lamar is building a new garage, which is to contain salesrooms for the Oldsmobile, as well as repair and accessory shops.

Hailey, Ida.; The Fowler Auto Co. is building a new garage on Main St. It is to be modern and fireproof.

Hamilton, Ill.; Fred Kopsiker is building a new garage at Eleventh and Broadway. The new building is to be 60 by 130 feet and is to be built of hollow tile.

Atlantic, Ia.; Adolph Paul has opened a repair shop.

Council Bluffs, Ia.; Kiel Garage is erecting a new garage.

Davenport, Ia.; Motor Service and Supply Co. is erecting a new garage.

Manilla, Ia.; Sykes & Callahan are building a garage on Main St. It will be two stories high.

Perry, Ia.; John McGregor is erecting a new garage.

Toledo, Ia.; D. W. Bowman and D. W. Witham are erecting a new automobile garage and repair shop.

Ellsworth, Kan.; M. L. Meed Motor Co. is erecting a garage 70 by 120 feet.

Manhattan, Kan.; The Manhattan Tire Exchange is erecting a garage.

Zuenemo, Kan.; F. C. White and W. H. Davidson are erecting a garage.

Baltimore, Md.; The Griffith-Turner Co. has leased the new garage which is being ereeted at Guilford Ave. and Pleasant St. The building is to be of brick and two stories high.

Fairbault, Minn.; O. R. Gould and W. B. Coats have opened a tire rebuilding shop in the brick building east of the Brunswick Hotel.

Wheaton, Minn.; Lynch & Co. has opened a new automobile repair shop and will conduct it in connection with their Ford salesrooms.

California, Mo.; Routzong & Cook is building a garage.

Superior, Neb.; Elliott & Myers Co. is erecting a garage.

Tobias, Neb.; W. J. Willeford is remodelling and enlarging his garage.

Nashville, N. C.; The Mann Garage Co. is remodelling its business house and is to install a garage and accessory shop.

Mohall, N. D.; V. W. Jones has erected a building south of the Peterson Garage and is to carry a complete stock of tools, automobile accessories and supplies.

Cleveland, O.; The Stearns Motor Sales Co. will build a $25,000 service station at 1959 East 61st St. It will be a one-story structure, 150 by 134 feet.

Chester, Pa.; The Viocese Co. is building a new garage which is to be 30 by 100 feet and one story high.

Erie, Pa.; The Erie Fireproof Garage is being erected at French and Fifth Sts. It will cost $35,000. The building is to be of concrete blocks and glazed bricks and will be 165 by 200 feet.

Philadelphia, Pa.; Michael Rock, Jr., is building a new $10,000 garage.

Bancroft, Wis.; P. W. Rindfleisch has leased a garage and will do all sorts of repair work.

Chippewa Falls, Wis.; Charles Davis has opened an automobile repair shop.

Waxahachie, Tex.; The Carlisle Motor Co. is erecting a modern showroom.

NEW BUSINESS LOCATIONS, REMOVALS AND IMPROVEMENTS.

Fort Smith, Ark.; The Bryant & Ray Automobile Co. has removed into a new location at 17 and 19 North Ninth St.

Fort Smith, Ark; The Electric Service Co. will move into the two-story triangle building at Townson Ave. and North A St.

Fresno, Cal.; Emiel Hansen has moved his garage and repair shop into new quarters at 612 Eye St.

Los Angeles, Cal.; The Irving Motor Car Co. has moved into new quarters at 11th and Flower Sts.

Salinas, Cal.; The Salinas Vulcanizing Co. has moved to 352 Main St.

San Jose, Cal.; The Wilson Tire Co. has moved to the corner of Market and Santa Clara Sts.

Peoria, Ill.; The Karl Motor Co. has moved into its new garage on South Adams St. The company consists of Gus F. Karl, W. A. Karl, H. G. Karl and R. J. Karl.

Quincy, Ill.; The Overland Automobile Co. has moved into its new home at 609-611 Vermont St. D. R. Yantis is district manager. The firm controls the Overland distribution in 25 counties of Illinois and Missouri.

Springfield, Ill.; The Portwood Garage has moved from 320 South Fourth St. to 918 East Capitol Ave. Everett Portwood is the proprietor.

Kokomo, Ind.; S. B. Purvus has moved into new quarters on North Buckeye St.

Eldorado, Kan.; The Eldorado Tire Service Co. has moved to 123 West Pine Street.

Ottawa, Kan.; The Autoway Tire and Vulcanizing Co. has moved to the Newman Waring Building.

Wichita, Kan.; The College Hill Garage has moved into its new building at Douglas and Hillside Sts.

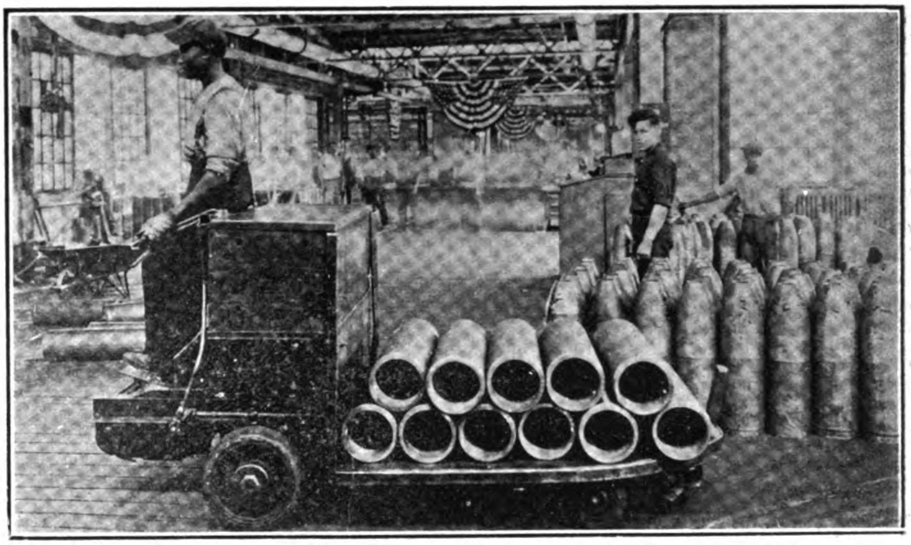
Eldon, Mo.; Hite's Garage has improved its repair service by adding new equipment.

Hannibal, Mo.; The E. C. Long Co. has moved to Quincy, Ill.

Kansas City, Mo.; George Neff is remodelling his garage to cost $6000.

St. Louis, Mo.; The Barnett Sales Co. has moved into new quarters at 2815 Locust St. Leonard N. Coates is sales manager of the company.

St. Louis, Mo.; Frank G. Boble is remodelling his garage at a cost of $3000.



Electric Industrial Truck Used in a Munition Factory with a Load of 220 Millimeter Shells for Delivery in Another Department.

Butte, Mont.; The Dominant Motor Co. has moved into its new home at 124 East Copper St. F. H. Earsley is the manager.

Beaver City, Neb; F. O. Wixson has moved his establishment to Wilsonville, Neb.

Omaha, Neb.; The Auto Electric Service has moved into larger quarters at 2205 Farnam St.

Omaha, Neb.; Crumbiles & Van Doran Co. has moved into a new location at 2204 South 19th St.

Orange, Tex.; The Hill Motor Co. has moved to Green and Third Aves.

Milwaukee, Wis; The Baker R. & L. Co. has moved from 604 Downer Ave. to 430 Jefferson St.

Milwaukee, Wis.; The Wisconsin Briscoe Co., 495 Broadway, has moved to 539-543 Broadway. The service station will also be moved to the new location.

Milwaukee, Wis.; The Hoppe-Hatter Motor Co. has moved to 486-490 Milwaukee St. The company was formerly located on Broadway.

AGENCIES, DEALERS AND SERVICE STATIONS.

Modesto, Cal.; T. T. Cox has established the Auto Exchange Co., at 622 Tenth St., and will sell used cars and tractors.

Modesto, Cal.; The Auto Exchange Co. has opened a used car, tractor and tire salesroom at 622 Tenth St.

Monterey, Cal.; C. H. Culp has opened a Dodge salesroom and a service station at Mumas and Fremont Sts.

Mountain View, Cal.; C. Redwine has secured the agency for the Willys-Knight and Overland and has opened under the name of the Mountain View Motor Co. at 242 Castro St.

Mountain View, Cal.; The Mountain View Vulcanizing Works has been established at 283 Castro St.

Salinas, Cal.; Frank W. Horigan has added a truck department and will deal in Service trucks. He is a dealer in Dodge and Chandler cars.

San Francisco, Cal.; The American Automobile Acessory Co. has opened an accessory and tire shop at 917 Van Ness Ave.

San Jose, Cal.; The Field Motor Car Co., 400 South First St., has added the Nash car and truck to its line.

San Jose, Cal.; Theodore Fields has leased the salesrooms at 218 South First St. and will handle the Grant Six and Premier cars.

San Jose, Cal.; The San Jose Tractor and Truck Co. has leased salesrooms and service station at 445 West Santa Clara Street.

San Jose, Cal.; The Consolidated Garage Co. has secured the agency for the Maxwell.

Atlanta, Ga.; B. A. Hawkins has opened salesrooms at 220 Ivy St. in part of the building erected by the Goldsmich-Grant Co.

Galesburg, Ill.; The Johnson Oil Refining Co. is opening a gasoline and oil station at Simmons and Kellogg Sts.

Wichita, Kan.; The Peerless Princess Motor Car Co. has opened for business at 210-212 West Douglas St.

Baltimore, Md.; The McGinnis Bros. have been oppointed distributor of the Columbia truck and trailer.

Boston, Mass; Pettingell-Andrews Co., 100 Brookline Ave., has been appointed New England distributor for the Automatic Extension Reel.

Grand Rapids, Mich.; T. G. McGurrin has established a new truck unit salesroom at 41-45 Ottawa Ave. He is a distributor for the Hudford truck.

Red Wing, Minn.; The Busch Garage has installed a service station to repair electric starting and lighting systems.

Chillicothe, Mo.; O. W. Burnett has opened a battery and supply station at 444 South Locust St.

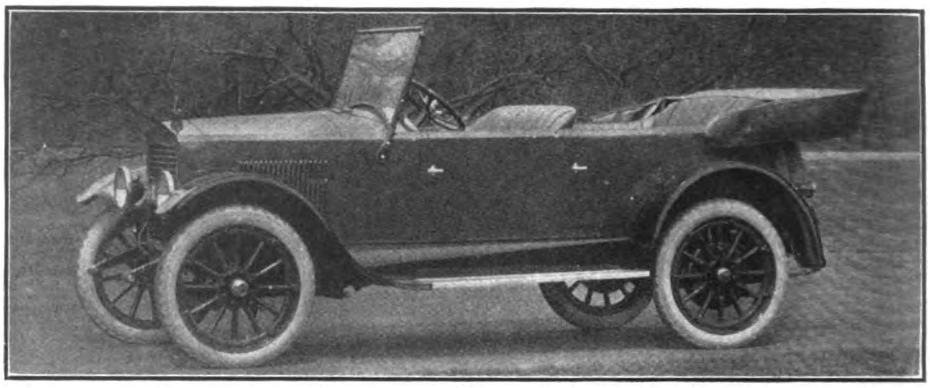
St. Louis, Mo.; The Briscoe Motor Sales Co. has opened a new showroom at 2925 Locust St. They are the distributors of Briscoe cars.

St. Louis, Mo.; The United Brokerage Co. has opened an office in the Pierce Building to distribute Punturene. C. A. Ten Eick is manager.

The Essex

Built in Hudson Factory and Sold by Hudson Dealers

Latest Entry in the Passenger Car Field Is Manufactured by the Essex Motors, Which Is Composed of Officers of the Hudson Motor Car Co. It Is a New Car in a New Class and Has Many New Features Both in Mechanical as Well as General Design.



The Essex Five-Passenger Touring Car, Showing New Fuselage Type of Body Lines and Graceful Set of Windshield, Steering Wheel and Seats.

NEW CONCERNS RECENTLY INCORPORATED

Monthly Record of New Business Houses for which Charters Have Been Issued in the Various States and Classified According To Nature of Business

NEWLY ORGANIZED MANUFACTURERS OF CARS, TRUCKS AND TRACTORS.

Dover, Del.; First National Finance Corp.; $7,500,000; to manufacture and sell motor trucks; Henry V Green, James H. O'Connell, Edward Fancher.

Dover, Del.; Knittel Krawler Tractor Co.; $100,000; to manufacture tractors and wagons; F. A. Armstrong, S. E. Dill, C. E. Rimlinger.

Dover, Del.; Montana Tractor Co.; $1,000,000; to manufacture and deal in tractors, motor boats and automobiles.

Wilmington, Del.; The Craig Tractor Co.; $500,000; to manufacture agricultural implements of all kinds; Norman Craig, Arthur Judson, Roland T. Meachan.

Chicago, Ill.; Montana Tractor Co.; $1,000,000.

Greensburg, Ind.; Victor Tractor Co.: $250,000; to manufacture tractors; Elmer Sefton, Frank Hamilton, F. D. Henzie, W. S. Reed, Lester McCullough, R. C. Kanouse.

Wabash, Ind.; The Wabash Tractor Co., successors of the Plano Tractor Co.; $3,000,000; to manufacture tractors; Fred E. Walter, E. F. Vaughn, B. O. Eddinghouse, N. C. Honeywell, L. L. Hyman, Charles S. Hass, R. J. Evans.

New York, N. Y.; Menominee Motor Truck Co. of New York, Inc.; $100,000; to manufacture passenger automobiles and trucks; T. F. Peterson, A. L. Wright, M. H. Cooley.

Greensboro, N. C.; Southern Truck and Car Corp.; $1,000,000; to manufacture motor trucks; J. A. Norfold, H. A. Christie, R. A. Skinner.

Cincinnati, O.; Cincinnati and Dayton Tractor Co.; $1,250,000; J. M. Hutton, Leo J. Vam Lahr.

ACCESSORIES, EQUIPMENT, SUPPLIES

New Haven, Conn.; The Horton Gallo, Creamer Co.; $100,000; to do a general jobbing business in automobile tires; W. Perry Curtiss, Edward C. Gallo, Jos. F. Creamer.

Dover, Del.; International Thread Gauge Co.; $1,000,000; Samuel B. Howard, Paul S. Smith, Arthur B. Britton.

Dover, Del.; Moorehead Radio Corp.; $1,000,000; to manufacture, sell and deal in electrical magnetical mechanical contrivances of al kinds; C. L. Rimlinger, F. A. Armstrong, B. A. Spangler.

Wilmington, Del.; Keystone Tire Co.; $100,000; to manufacture and deal in rubber tires, tubes, rims and accessories.

Augusta, Ga.; Ingram Motors Corp.; $500,000; to manufacture and deal in all kinds of internal combustion engines, motors, carburetors and machinery.

Chicago, Ill.; Guarantee Auto Supply Co.; $20,000; S. F. Jacobson, J. J. Levine, H. E. May.

Chicago, Ill.; Liberty Taxi Co.; $100.000; to manufacture and deal in automobile accessories.

Chicago, Ill.; St. Louis Tire and Rubber Co.; $10,000; C. P. Schwartz, D. W. Kahane, J. L. Gordon.

Noblesville, Ind.; Spiro Spark Plug Co.; $2000: to manufacture, buy and sell spark plugs; J. R. Pierson, Ruth R. Pierson, Joel D. Sturdevant, Orph H. Wheeler.

Des Moines, Ia.; Black Hawk Tire and Rubber Co.; $1,000,000; William Moran, J. F. Griffin, J. C. Kirby, J. J. O'Malley.

Wichita, Kan.; Rubber Products and Supply Co.; $10,000: to handle tires, automobile supplies and accessories; Earl A. Blake, B. A. Helfrich, Paul Deam, W. G. Barboui, Frank Purnell, Fred C. Dymock.

Detroit, Mich.; Detroit Gasoline Gauge Co.: $25,000; George M. Conpur, William A. Giffen, R. M. Muir.

St. Louis, Mo.; The Grand & Gravois Automobile Co.; $15,000; to deal in tires and accessories: A. J. Deitrich, Theo. Mueller, E. L. DeWinter.

Buffalo, N. Y.; The Vacuum Glass Spark Plug Corp.; $50,000: to manufacture automobile accessories, including spark plugs; M. L. Joyce, M. White, J. Hoyt.

New York, N. Y.; The Autophor Co. of New York, Inc.: $5000; to manufacture signal devices; M. Grossman, J. Israel, F. W. Alger.

New York, N. Y.; Bay Ridge Radiator and Tire Works; $5000; M. Raifman, M. Adelman, J. Oglinsky.

New York, N. Y.; International Vehicle Supervision Corp.: $100,000: to deal in appliances and attachments for automobiles; C. Cox, J. A. Howe, J. J. Howe.

New York, N. Y.; Kucher & Miller, Inc.: $10,000; to manufacture tools, gauges and machines; J. E. Kucher, W. H. Miller.

New York, N. Y.; U-Need-It Dry Storage Co.; $75,000; E. E. Creighton, A. Jacobson, J. J. Friedman.

New York, N. Y.; H. W. Wolcott Co., Inc.: $200,000; to deal in automobile accessories; H. W. Wolcott, C. W. Gabriel, W. H. Gabriel.

Akron, O.; The Reid Bros. Quick Fix Rubber Co.; $10,000; F. W. Reid.

Bowling Green, O.; Bowling Green Die and Tool Co.: $25,000; Clyde V. Urschel, W. M. Gray, Philo S. Hankey, R. L. Swartz, P. M. Davidson.

Canton, O.; Atlas Machine and Die Co.; $25,000; Pierce H. Effinger, C. C. Conter.

Canton, O.; Evans Auto Signal Co.; $75,000; to manufacture and distribute Evans Automobile Signals; David Seitner, Edward Bomberger, J. E. Tschantz, William Hambechaun, E. L. Cohn, U. R. Reichenbaugh.

Cleveland, O.; Automotive Radiator Co.; $50,000; John M. Garfield, Ralph Burroughs, W. B. Cockley, R. C. Hyatt, B. A. Kittinger.

Cleveland, O.; Complete Auto Supply Co.; $10,000; Leo J. Freedman, J. E. Weinberger, Louis R. Lanza, Paul J. Arndt, M. W. Arndt.

Eaton, O.; Eaton Tire Service Co.; $5000; Ross Focht, William Frech, Herman C. Thomas, Henry E. Dalrymple, Pauline Focht.

Elyria, O.; Consolidated Rubber Co.; $25,000; B. W. Rote, A. L. Jackson, H. W. Summers, Steve J. Leser, W. O. Griswold.

Johnson City, Tenn.; The Southern Bending Co.; $80,000; to manufacture bent rims and dimension stock; W. O. Nelson, R. M. Watkins, O. D. Hutchens.

Knoxville, Tenn.; Cooper Rubber Co.; $40,000; to manufacture and deal in rubber automobile supplies and other rubber goods; Ira J. Cooper, Jesse M. Brumbaugh, Robert D. Bond, Harry H. Bernner, Eugene Wilkins.

Dallas, Tex.; Great Tire Co.; $5000; New York, N. Y.

Fort Worth, Tex.; Standard Battery Mfg. Co.; $25,000; A. J. Combs, J. E. Lowery, A. F. Hawkins.

Nacogdoches, Tex.; Baxter Motor and Supply Co.; $15,000; W. Y. Garrison, Oscar Baxter, Thomas E. Baxter.

Madison, Wis.; Buller Coupler Co.; $15,000; Bascom B. Clarke, James L. Clarke, Edward E. Parkinson.

Madison, Wis.; Johnson Tire and Rubber Co.; $2,500,000.

Milwaukee, Wis.; Crude Oil Gas Burner Co.; $100,000; W. J. Bentley, Frank C. Kenney, F. J. Hammer.

Milwaukee, Wis.; Great Lakes Rubber Co.; $100,000; Donald C. Barbee, Carl J. Zaiser, Hubert O. Wolf.

Milwaukee, Wis.; Zwebell Bros. Co.: $25,000; to manufacture a mold for retreading tires and to conduct a general wholesale and jobbing business in tire repair material and supplies; Arthur B. Zwebell, Herbert A. Zwebell, Albert R. Zwebell.

GARAGES AND REPAIR SHOPS.

Huntington, Conn.; The City Garage: $20,000; J. E. Fair, Jas. Carney, Alfred C. Baldwin.

Chicago, Ill.; Roman Garage Co.; $8000; Michel Deddo, Emil Robschild, Mathew Deddo.

Coldwater, Kan.; Coldwater Garage Co.; $30,000.

Nashua, N. H.; The Mercer Bros. Garage Co.: $75,000; Ottis E. Mercer, James A. Truaz, Forrest C. Mercer, Ross D. Mercer, Albert Terrien.

Buffalo, N. Y.; C. W. Miller Co., Inc.; to conduct a livery .garage and ticket office; E. J. McCone, C. J. Hines, E. Stratton.

San Antonio, Tex.; The People's Good Goad Garage; $10,000; James A. Harley, R. J. Farrell, John Cavanaugh.

Madison, Wis.; Osmond Kemler Co., Garage; $40,000; N. E. Osmond, Truman D. Kemler, Thomas K. Keahy.

PARTS AND FITTINGS MAKERS.

Chicago, Ill.; Bertolini Motor Carburetor Co.; Guiseppe Bertolini, Nicola Alleva, Tomaso Restelli, Nuziato Scappucci.

Chicago, Ill.; Equitable Auto and Parts Corp.; $2000; H. Lewis, Julius Greenbaum, William S. Newburger.

Baltimore, Md.; Armleder Motor Sales Co.; $50,000; to handle motor truck product of the O. Armleder Co.

Boyne City, Mich.; Tractor Engine Co.; $75,000; to manufacture engines for tractors and trucks; Frank Kaden, J. F. Berry, E. M. Ackerman.

Detroit, Mich.; Tractor Parts Co.; $500,000; S. H. Tolles, John M. Garfield.

St. Louis, Mo.; The Bober Auto Parts Corp.; to manufacture automobile parts.

Paterson, N. J.; Jackson-Sheffield Co., 220 Railroad avenue; $100,000; to deal in motors, machines and engines.

New York, N. Y.; Holger Products Mfg. Co., Inc.; $10,000; to manufacture and deal in devices for automobiles; R. Schreifels, H. S. Peterson, J. Peterson.

New York, N. Y.; Mooney Motors, Inc.; $10,000; C. E. Baird, H. J. Hegt, W. Matthews.

Cleveland, O.; Stearns Aero Parts Co.; $500,000; S. H. Tolles, John M. Garfield, R. C. Hyatt, Ralph Burroughs, Thomas H. Jones.

Cleveland, O.; Tractor Parts Co.: $500,000; S. H. Tolles, John M. Garfield, R. C. Hyatt, Ralph Burroughs, Thomas H. Jones.

Dayton, O.; Dayton Co-Operative Auto Co.; $25,000; R. E. Smith, C. Beard, George Beard and P. A. Gose.

Charleston, S. C.; The Standard Motor Co.: $10,000; W. C. Wilbur, president; R. B. Gilcrest, secretary and treasurer.

DEALERS IN AUTOMOBILES AND MOTOR TRUCKS.

Little Rock, Ark.; C. J. Snyder Co.; $25,000; J. G. Burlingame, Claude S. Wells, Robert Crow, Gordon H. Campbell, S. R. Pruesley.

Hartford, Conn.; Hartford Scripps-Booth Co.; $50,000; A. V. Hine, R. J. Flynn, N. E. Pierce.

Dover, Del.; Alliance Co., Inc.: $100,000; to manufacture, sell and deal in motorcycles, motor engines; Mathew S. Kinbaugh, Henry P. McHugh, William S. Vallnex.

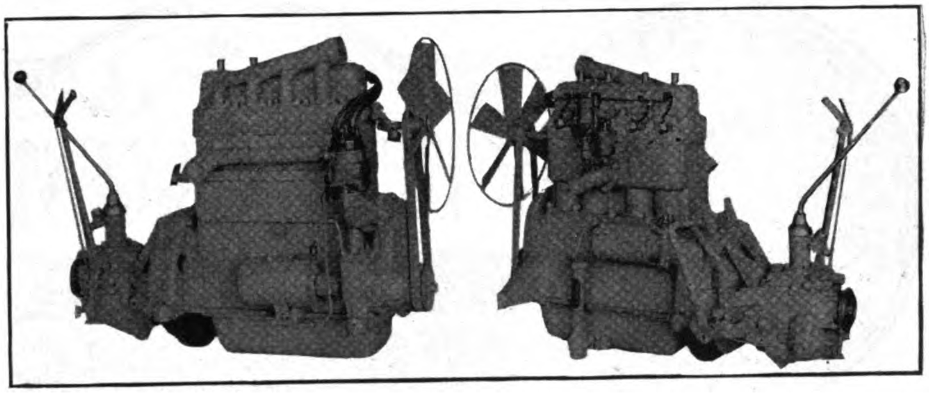
Dover, Del.; Williamsport and Philadelphia Truck Freight Line, Inc.; $90,000; to engage in the business of hauling freight; Jonathan Brown, M. E. Brown, Edward Everett.

Chicago, Ill.; Cowley Motor Engineering Co.: $5000; John T. Walbridge, Justus Chancellor, J. E. Benton.

Chicago, Ill.; Indiana Harbor Motor Transportation Co.; $25,000; N. M. Adams, G. E. Lungu, G. A. Hoadrea.

Galesburg, Ill.; Farmers' Motor Co.; $100,000; C. M. Burton, B. A. R. Tyler, A. E. Thompson, G. W. Cowden.

Englewood, Ill.; Overland Sales Co.; $10,000; H. V. Brown, C. H. Fisher, F. C. Verles, R. C. Lucas.



Showing Both Sides of the Essex Engine, an Extremely Neat and Compact Power Plant.

Rock Island, Ill.; Rock Island Automobile Co.; to deal in trucks, tractors and stationary engines; Albert G. Don, Arno J. Treman, Fred I. Breecher, Charles G. Schwinder.

Washington, Ind.; The Washington Vulcanizing Co.; $10,000; to buy and sell motor vehicles; Eliza K. Sudduth.

Louisville, Ky.; Liberty Auto Co.; $10,000; A. A. Ericson, R. D. Otter, Frank Kelly.

Louisville, Ky.; Louisville Automobile Dealers' Association; $7500; Prince Wells, W. A. Thomas, P. S. Longest.

Owensboro, Ky.; Central Tractor Sales Co.; to distribute tractors; W. L. Reno, Lauson Reno, W. R. Cavin, H. H. Richardson, J. D. Cushman.

Lansing, Mich.; Cushman Auto Sales Co.; $50,000.

Mt. Pleasant, Mich.; Transport Truck Co.; $1,000,000.

Springfield, Mo.; The Page Batter Co.; $5000; to buy, sell, lease, repair and charge automobiles and other vehicles, tires, parts and accessories, and furnish general automobile and battery service to the public; E. C. Page, Warren L. White, Azalea Page.

New York, N. Y.; Birns Express, Inc.; $100,000; to do a general trucking and contracting business; C. Marks, H. Cohen, H. MacCormick.

New York, N. Y.; Despatch Auto Trucking Co., Inc.; $30,000; L. I. Brown, H. Levine, C. Levine.

New York, N. Y.; The J. D. McQuade, Inc.; $50,000; Manhattan freight transportation; J. D. McQuade, F. C. Hirlman, D. Cavanaugh.

New York, N. Y.; J. K. Welding Works; Inc.; $5000; J. A. Klevensky, T. T. Moorria, M. Negri.

Weldon, N. C; The Bounds Motor Co.; $50,000; to buy and sell automobiles and to deal in hardware; H. V. Bounds.

Cleveland, O.; Kenney & Kirk Motor Sales Co.; $25,000; John J. Kenney, J. H. Kirkpatrick, Burt A. Miller, William E. Miller, William Rothenburg.

Cleveland, O.; Material Service Trucking Co.; $30,000; Charles W. Scrimshaw, A. M. Stetzelberger, F. M. Weeldin, V. L. Stanford, N. G. Kanninggieser.

Columbus, O.; Mac-Dan Co.; $10,000; Joseph K. McCloy, Arthur R. Pegler, Harry H. Welder, Daniel J. Smith, R. W. Shaw.

TRADE INFORMATION EXCHANGE

PASSENGER CARS.

Hardin, Ky.; Ross & Lents would like to secure the agency for gasoline passenger cars; selling price, $500 to $1850.

COMMERCIAL CARS.

Hardin, Ky.; Ross & Lents is anxious to secure the agency for gasoline commercial cars; selling price, $500 to $2000.

SPECIAL OPPORTUNITY.

Detroit, Mich.; Maurice W. Fox would consider the agency for accessories (especially for Fords), in the territory of eastern Michigan.

Ada, Minn.; Union Motor Car Co. is anxious to secure the agency for Stutz or Mercer cars in the territory of the northern half of Minnesota.

Independence, Mo.; A. S. Macon wants the agency for tractor in the territory of Jackson county.

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Hardin, Ky.; Ross & Lents wants to secure air compressors, air pumps, antirattlers, arbor presses, autogenous welding equipment, axles, banding,' bearings, belts, bodies, bolts, brakes, bulbs, camshafts, cams, carbide, carburetors, cases, cements, chains, clamps, clips, clutches, coils, commutators, cones, cranes, cups, curtains, cutters, cushions, cylinder machines, cylinders, dimmers, drills, dynamos, engines, fans, fenders, fire extinguishers, gaskets, gasoline, gear cutting machines, gears, glass, greases, headlights, heaters, hoists, holders, horns, hose, hubs, jacks, lamps, lathes, machinery, magnetos, maps, mechanical starters, motors, mufflers, nuts, oils, paints, patches, pedals, pinions, pins, pistons, platinum plugs, polishes, primers, printing matter, pullers, pulleys, pumps, races, radiators, ratchet drills, reamers, reflectors, regulators, removers (carbon), rests, rims, rods, rubber, searchlights, shafting, shock absorbers, soaps, sockets, solder, speedometers, spokes, springs, stampings, starters, steel, steering wheels, tanks, tape, testers, timers, tire accessories, tires, tools, tops and parts, transmissions, trimmings, valves, varnishes, vulcanizers, washers, wheels, whistles, windshields, wire, wrenches and special bodies for passenger and commercial cars.

Detroit, Mich.; Maurice W. Fox wants bolts, bumpers, drills, fans, fenders, greases, lamps, mufflers, oils, speedometers, tire accessories, wheels, wrenches and special bodies for passenger and commercial cars.

Ada, Minn.; Union Motor Car Co. wants air compressors, air pumps, bumpers, cabinets, charging apparatus, elevators, fire extinguishers, guns, oils, recording time clocks, shims, storage systems, turntables, waste.

Independence, Mo.; A. S. Macon would like to secure autogenous welding equipment, charging apparatus, cylinder machines, dynamos for car lighting, generators for car lighting, grinders.

Nashua, N. H.; The Mercer Bros. Garage Co. is in the market for lathes, machinery, shapers and turntables.

PRACTICAL SUGGESTIONS

OVERHAULING SPRINGS.

(Fig. 70.)

Rattling and squeaky springs are very annoying and while overhauling them is a dirty job it does not have to be done often and amply repays the operator for the labor spent.

The car must first be raised so that the wheels clear the ground and this may best be done with the aid of horses slipped beneath the frame. As the operator is working continually under the car this method is much safer, as it gives the car perfect stability and removes any chance of the car slipping.

The springs are held to the frame by shackle bolts and to the axle by U clips. The shackle bolts are first removed, after which the axle and springs can be lifted clear of the car. The axle is then turned bottom upward, thus making the U bolts easily accessible. Between the axle and the U clips there is usually a strip of hard wood packing, which must be replaced when the spring is being reassembled. After the U bolts are removed the spring will come free of the axle. The leaves of the spring are held together by a center bolt in most instances and the spring must be placed in a vise before this bolt is removed. The vise is then opened slowly and the leaves will separate, touching at the ends, whereupon a gap will appear about a half inch wide between the surfaces of the leaves. The contact surfaces of the leaves will probably be rusty, with a few brown polished spots where the uneven surface has rubbed for lack of lubrication. A stiff wire brush and some emery cloth will smooth away the rust, after which the spring may be thoroughly washed in soap and soda water and then dried carefully with a cloth. The spring should then be gone over with graphite, working it well into the pores of the steel. In replacing the spring leaves a thick piece of wire should be threaded through the center bolt hole of each leaf. This will cause the holes to line up when the assembly is clamped into the vise. The U bolts should not be tightened until the spring and axle is fitted to the shackle links, because the U clips allow a slight lateral movement of the spring on its table or pad on the axle. In this way one can tap the spring this side or that with a light hammer to set it more squarely upon the shackle bolts After these have been tightened the U clips may also be taken up and the finished result will be an easy riding spring free from squeaks and rattles.

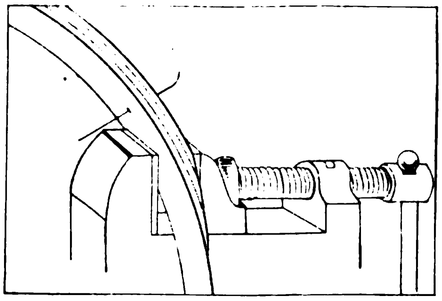


Fig. 70.

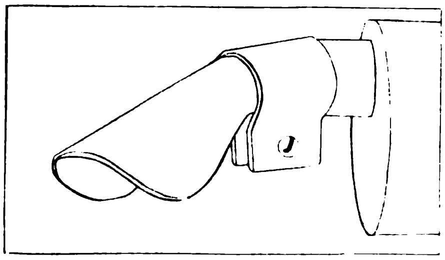


Fig. 71.

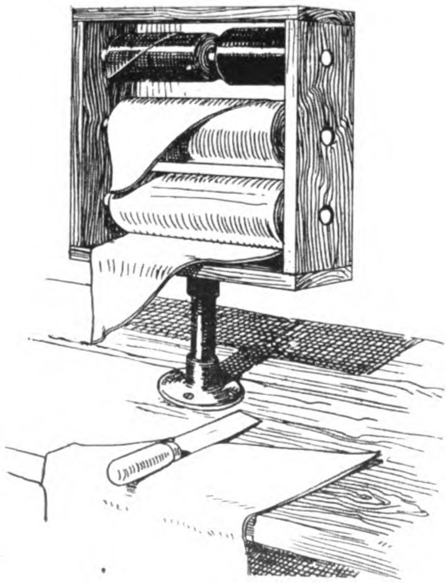


Fig. 72.

DEFLECTOR FOR EXHAUST PIPE.

(Fig. 71.)

In some cars it so happens that the rear of the exhaust is placed in such a position that the gases, as they pass from it into the open, are caught by the swirling air behind the car and sent up backwards over the rear seats.

A device to prevent this trouble is easily made by purchasing an adjustable spring clip and shaping a piece of tin into a cowl arrangement so that the gases upon striking this are sent downward and outward from behind the car.

AN EFFICIENT GUM AND FABRIC RACK.

(Fig. 72.)

Here is a gum and fabric rack which vulcanizers are finding convenient and practicable. It keeps the repair stock clean and permits several men to work at the same table without interfering with each other. It is a wooden frame, made to hold several rolls of gum and fabric, revolving on a stand fastened to the table. It can be turned in any direction to accommodate workmen at the opposite ends of the table.

The frame is of two by four lumber, with holes bored through the sides to hold the rolls. The rack revolves on a piece of half inch pipe, threaded on one end to fit a wide collar, which is screwed to the center of the table. On the bottom of the rack is screwed a piece of two inch flat iron, into which a hole a trifle larger than the pipe support is bored. This hole extends into the wood an inch to act as a recess for the pipe support, and increases its rigidity. Then another collar is screwed to the iron to hold the pipe in place.

On the end uprights of the rack may be hung knives, rollers, stitchers, scissors, etc., thus keeping the table clear of working tools and allowing more table space for the repair. The entire contrivance is so simple that any vulcanizer can construct one very easily. This type of rack is used in the Goodyear School of Tire Repairing, Akron, O.

GENERATOR TESTING.

(Fig. 73.)

If there is an engine lathe at hand when testing electrical equipment, there is no need of specially designed machinery. The motor to be tested can be clamped in the lathe bed and driven from the spindle through a flexible shafting. The shaft is made of a piece of hose containing a coiled steel spring. One end of this hose is clamped in the lathe chuck and the other end fitted with an attachment for coupling to the armature shaft of the motor. This arrangement will permit the same work as the expensive apparatus designed to accomplish the same end.

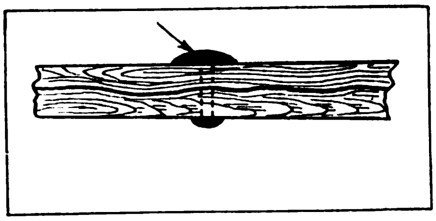


Fig. 74.

GOOD REPAIR FOR CRACKED SPOKE.

(Fig. 74.)

Very often on a slippery street the car skids and is thrown against the curbing, the result being a cracked spoke. This should be immediately fixed as neglect will probably result in the spoke breaking off. Drive to a machine shop and have a hole drilled through the split spoke, a rivet inserted and hammered together tightly. The rivet head will prevent side play in one direction, while the shank of the rivet will prevent motion at right angles. The rivet can be painted the color of the wheel and will not be noticed except upon close inspection.

GASOLINE FIRES.

If you are so unfortunate as to be the victim of a gasoline fire in your garage, or anywhere else for that matter, remember that gasoline does not mix with water, and consequently water should never be used to extinguish such a fire. If a patent fire extinguisher is not at hand throw sand on the blaze, or use sawdust. The latter is not easily ignited and when it does burn there is no blaze of any consequence.

TO CLEAN THE HANDS.

For the car owner who does his own work the question of keeping his hands presentable is quite a problem. After the work about the car or garage is finished, a light oil, preferably cylinder oil, is rubbed upon the hands, using it just as soap and water are used. This method will work all the grease loose and then the hands may be wiped on a piece of clean waste or cloth, thus leaving the hands in good shape for thorough cleansing with soap and water.

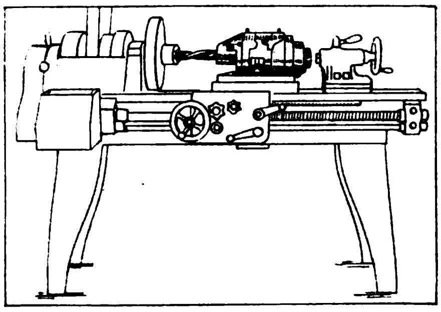


Fig. 73.

PROTECTING FORD TIMER WIRES.

(Fig. 75.)

The wiring on Ford cars near the commutator is so placed that it soon becomes soaked with oil and covered with dirt. The wires, which are painted various colors for identification, quickly become coated, so that all semblance of color is lost. It is therefore impossible to make use of colors as a guide in replacing them on the timer should they be removed. A piece of rubber tubing, fiber will do as well, about 2¼ inches long by ⅜ of an inch wide, is placed over the assembly of wires and pulled up close to the timer. The wiring inside of this tubing is, of course, kept clean from oil and dirt, and when the occasion arises to remove the wires, the tubing is easily slipped back and the wires can be adjusted, repaired or cleaned as suits the occasion. This suggestion easily proves its practicability by preventing short circuits and keeping the engine free from defects of this nature that would otherwise occur.

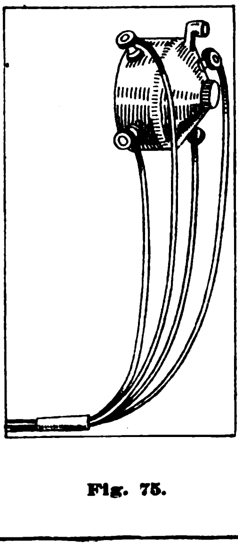


Fig. 75.

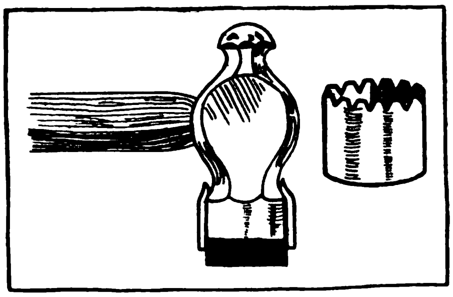


Fig. 76.

FAN ATTACHED TO SHAFTING.

(Fig. 77.)

Now that summer is well under way and the dog days nearing, the constant moving of air in the garage will do much to raise the productiveness of the employees. A fan made of sheet tin stiffened with a cast iron rod throughout its length that is riveted to it and attached to the shafting with "U" irons and bolted fast. It must be placed somewhere on the shafting where it will swing clear of the workmen and be fastened securely so that it cannot fly off.

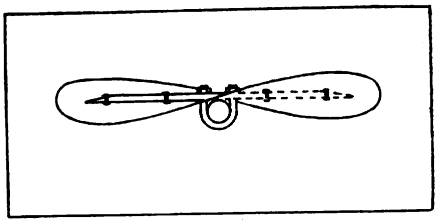


Fig. 77.

MAKING A SOFT HAMMER.

(Fig. 76.)

In making an attachable soft head for a hammer a piece of ordinary metal tubing about 2½ inches long is necessary so that it will slip easily over the head of an ordinary hammer. The tube is cut by means of a hacksaw into the shape of a V so that the V pieces may be bent over so as to clamp the device to the hammer. Into the tube projecting beyond the hammer should be poured molten lead, which when set will provide a very effective soft hammer. The lead must be left projecting of course and may be trimmed into shape, leaving about a quarter of an inch projecting beyond the head.

LEAKING PLUGS.

A great many automobiles are still in use with non-detachable cylinder heads and this type use valve plugs. These plugs often develop leaks which may be stopped by the application of ordinary stove paste or blacking over the threads. Too much should not be used. It may be applied at any hot joint in place of white or red lead.

TO SEAL GASOLINE JOINTS.

A very small number of automobile owners and operators know the value of soap as a positive seal for leaking gasoline joints. There is one place in particular where the gasoline oozes out and that is the filler tank when the tank is full or nearly so. If the tank is hung at the rear of the car the gasoline spreads over the outside of the tank, collecting dust and taking the gloss from it. A coating of ordinary soap on the gasket and threads will prevent this defect even though the tank is full and in this way one can keep the tank as clean and shiny as the rest of the car. This method will also prevent leakage around the carburetor joints.

SPOKE CLEANING BRUSH.

(Fig. 78.)

The purchase of two bottle cleaning brushes, the removal of the brushes from their handles and uniting them, fitting them back into one handle, shaped in the manner shown in the accompanying cut, affords a quick and easy manner in which to clean the spokes of an automobile wheel.

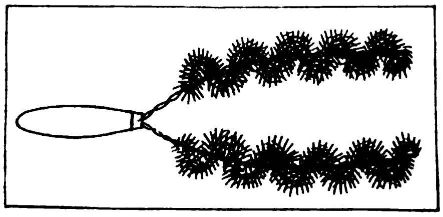


Fig. 78.

REPAIRING GASOLINE LINE.

(Fig. 79.)

When the gasoline pipe breaks somewhere in its length, the usual method of repair is to slip a piece of rubber tubing over the broken portions. This method is not likely to be a success because the vibration of the pipe will, in a short time, break through the rubber tubing. If the rubber tubing is not at hand, however, a temporary repair may be made by winding a short piece of tape about the broken ends of the pipe and then strengthening it with thin wooden splints, winding tape about the whole to fasten it securely.

FIXING LEAKS IN GASOLINE LINE.

(Fig. 80.)

Very often the gasoline line starts to leak as a result from chafing at some particular point. An easy way to remedy this is to obtain some soft wire, wrapping it tightly about the tubing, running a little way each side of the leak and then going over the wire with solder. This will make an efficient and permanent repair. The wire also preventing chafing again at that point.

PREVENTING TIRE VALVE LEAKS.

(Fig. 81.)

Not many motorists when changing a tube examine the nut at the bottom of the valve stem. This nut is provided to prevent leakage and does so by clamping the tubing surrounding the valve head under the seating plate.

This joint is more or less strained upon removal and will usually be found loosened to the extent of a quarter or half turn. If this is not tightened it will result in a small leak, probably the pressure in the tire falling 15 to 20 pounds in a week, the leakage being so small each day as to fail to draw the attention of the driver responsible for the care of the car, and if not attended to will later develop into more serious tire trouble.

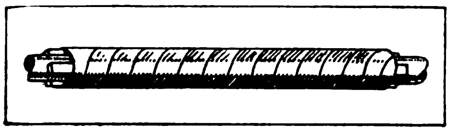


Fig. 79.

ABOUT BATTERY CONNECTIONS.

One of the most common and yet amazing things which happen to battery connections can be prevented in a very simple way. It will be found that inside the copper wire corrodes to such an extent that it severs itself completely and, of course, breaks the circuit. This corrosion is caused by the gas of the sulphuric acid in the cells, helped by the damp atmosphere attacking the copper and converting it into a powdery copper sulphate. This defect can be overcome by coating the wires at and around the terminals with cup greases or some nonfluid oil.

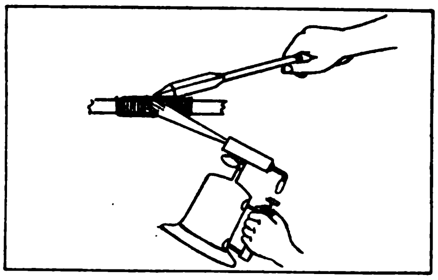


Fig. 80.

CLAMPING POLISHED PARTS.

It is often necessary to clamp the polished nickel or brass parts of an automobile in a vise to be drilled, threaded, etc., for the attachment of accessories, and is very often a difficult matter, as cloth or felt wrapped about them does not prevent them from slipping nor hold them firm, and thus they are liable to be scratched in spite of the precautions taken.

Sprinkle some dry plaster of Paris on a heavy paper and wrap in this paper the article to be held. Be sure that there is plenty of plaster between the paper and the polished surface. In the case of polished pipes, wooden blocks having hollow faces should be used. If these are not obtainable the ordinary lead faces of the vise sprinkled with the plaster may be inserted. Felt covered with the plaster will obtain the desired result. The plaster is used in each instance to increase the friction and so enable the part to be held more firmly.

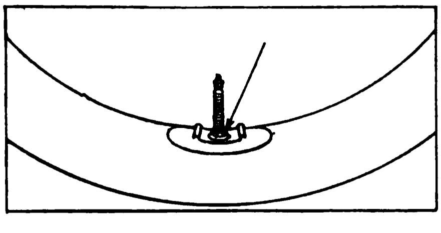


Fig. 81.

A MECHANICAL TIRE PUMP.

(Fig. 82.)

How many times have you started on a pleasure trip or tour and was forced to blow up three or four tires in the hot sun, spoiling all pleasure and the rest that you anticipated.

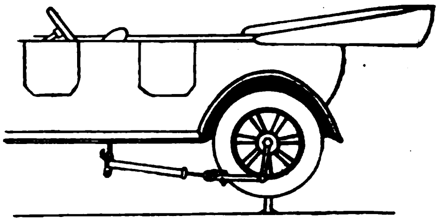


Fig. 82.

We suggest a contrivance which will eliminate all hand pumping and inflate the tires easily and quickly.

Attach a heavy iron hook underneath each running board near the outside edge of the automobile. Bore a hole in the foot step of the tire pump large enough to take the hook. It will probably be found necessary to bend the plunger into an eye so that the bolt may be slipped through it. Obtain a length of strap iron long enough to reach from the eye of the pump to the hub wrench, which is placed over the hub of the rear wheel, as shown in the sketch. If the pump is provided with a rubber tube long enough it will be possible to inflate either of the three tires. The other tire may be inflated by placing the pump on the other rear wheel. As there are three ranges of speed it does not matter which way the wheel turns. Jack up the rear wheel, start the engine, throw in the clutch and let the engine do the rest. This method has been found practical.

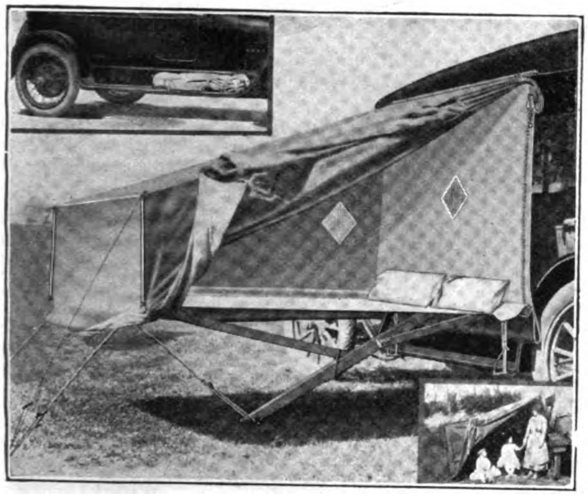
HAVE YOU A BETTER PLAN?

When you read the suggestions on these pages do you compare it with the plan you already follow for a similar class of work? Could you improve on the suggestions expressed here? Would you criticise the ideas of the author? Does one of the articles bring to mind a scheme you have worked out for solving an entirely different problem. Then why, Reader, don't you write us about it? Why not give the other readers the benefit of your ideas along these lines? To grow is to keep step with the times, to make known your ideas—to pass along your own experiences, plans, shop kinks. etc. Write up a little item about your ideas and send them to the Mechanical Editor.

EMERGENCY PRIMING.

If one is out on the road and it is necessary to obtain gasoline for priming the engine when all other methods of obtaining it from the tank fail, a valve cap tied to a piece of string and lowered into the tank will suffice to draw up enough gasoline to prime one cylinder. This can be done as often as necessary and is a good thing to have in mind in an emergency.

ACCESSORIES AND EQUIPMENT



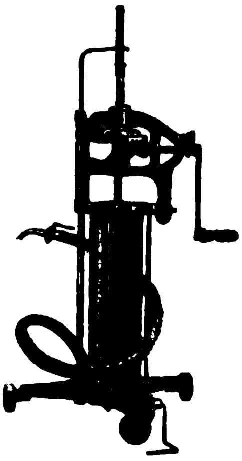
Whittmann Motor Camps.

Garco Gaskette Roll was devised for the countless small repair jobs where a cut piece of sheet packing is needed. It is made of specially selected long fiber asbestos with a network of strong fine wire interwoven in it, giving it the greatest possible strength and wear resisting ability. It is packed in a durable, dust proof carton cut 10 inches wide by 40 inches long. It is also furnished in full rolls of 250 pounds and half rolls of 125 pounds.

Manufactured by the General Asbestos and Rubber Co., Charlestown, S. C. Write for prices and literature.

Whittmann Motor Camps, when packed are only four feet six inches long and six inches in diameter. They strap to the running board of the car and the duffle which incloses it permits room also for the stowing of blankets, etc. It is but the work of a moment to unroll it, fasten one end to the running board, set up its one leg peg down the guy ropes and fasten the peak of the tent over the car. The tent is then ready for the night and the double bed, which is 4½ feet wide by six feet three inches long, is as comfortable as a mattress. The camp walls are joined and overlapping with a screened port on each side, adjustable from within to admit the breeze, but so designed as to exclude rain and insects. These camps are made for two, four, six or eight people with separate rooms for each two. The dimensions of each room are six feet eight inches long by four feet six inches wide. The bed tension is automatically self-adjusting to weight and sags less the more weight is put upon it. The tent is made of waterproof balloon silk and the entire equipment, including tent, bed and carrying case, weighs 15 pounds per person.

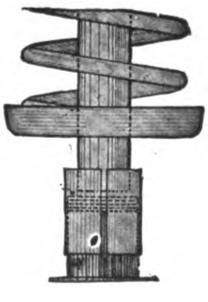
Manufactured by J. H. Whittman Manufacturing Co., Kansas City, Mo. Write for prices and literature.



Ekern Portable Garage Grease Gun.

GASKETTE ROLL

Garco Gaskette Roll.



The Townsan Valve Adjuster and Silencer.

The Ekern Portable Garage Grease Gun consists of a heavy seamless steel cylinder mounted on three wheels, having five feet of hose attached to the bottom of the cylinder, with shut off valve and nozzle at the end of hose. It registers and measures accurately the amount of grease put in the gear case or differential, and will work equaly well on liquid oil as well as hard grease. It is equipped with two sets of gears. When the crank is pushed in it disengages the low gear and immediately engages the high gear, which operates the piston either up or down at high speed. The cylinder is 20 inches long by six inches in diameter, capacity 20 pounds of grease or 2½ gallons of oil. The piston is covered with best quality cup shaped leather and is provided with an expansion ring in piston, which prevents any grease or oil from leaking by. The piston also has an automatic air vent, which releases the vacuum in the cylinder when cranking the piston up for refilling. The base is provided with a step lock which lifts the castor up off the floor and sets the gun rigidly while cranking.

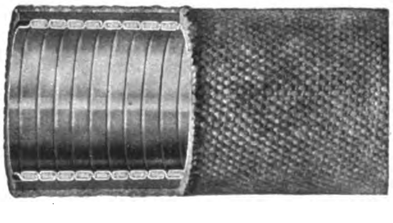
Manufactured by H. G. Paro, 1410-12-14 S. Michigan Boulevard, Chicago, Ill. Price, $47.50.

The Townsan Valve Adjuster and Silencer for Fords eliminates the click of the valves and takes up the wear. It is adjustable from time to time and can be placed on every valve, regardless of play, for it takes up play from the thickness of one disc, .006 inch and upward, to the amount necessary to quiet the valve.

Manufactured by the Midway Mechanical Co., St. Paul, Minn. Long sleeve of all models previous to 1912, and short sleeve for 1912 model and later. Write for prices and literature.

"Triplexd" Gasoline Hose uses the highest quality hose cord in its fabric cover, which is woven on with a circular loom, laying the fabric on the rubber under a pressure of 330 pounds to the square inch, so that it bites right into the rubber, which is pressed still closer around the metal lining. This metal lining, the makers claim, is the most flexible construction ever devised. The steel strip is made of best quality slow-rolled metal of accurate, uniform thickness and heavily electro galvanized, forming a gasoline hose that is non-leakable and of great durability and strength.

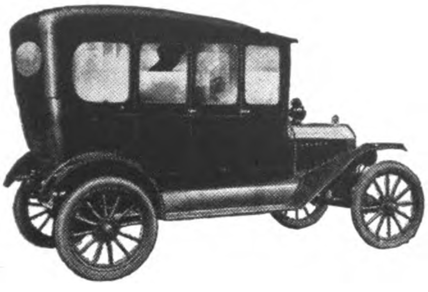
Manufactured by the Metal Hose and Tubing Co., Brooklyn, N. Y. Write for prices and literature.



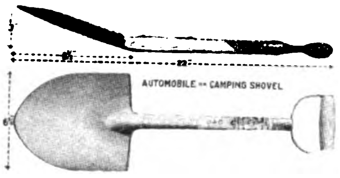
"Triplexd" Gasoline Hose.

The Anchor Top and Body is built in a complete line of demountable winter tops for Overland, Oakland, Buick, Ford, Dodge and Oldsmobile cars.

These tops are strongly constructed throughout, being built of selected hard wood stock, reinforced with steel. This frame is then covered with a high grade luster lasting water proof material and the interior is attractively lined in a soft gray cloth. All windows are of extra heavy crystal glass. Doors are so arranged that they open and close with the regular body doors of the car (except Fords). Windows of doors are provided with drop glass panes, which may be raised or lowered as desired, thus insuring ample ventilation at all times. Anchor tops fit snugly to the regular body of the car, with no overhang or unsightly attachments of any kind. All tops are shipped in such a manner that it is a very easy matter to install them on cars satisfactorily. All necessary attachments are furnished and as tops fit to regular body irons of car and are held there firmly by means of special irons, no difficulty should be experienced in getting tops on properly. Complete instructions are furnished and each iron is plainly marked where it is intended to be used. A large stock of all models are carried at factory for immediate shipments. However, in order to avoid delay in transportation dealers are advised to place orders early.


Anchor Top and Body.

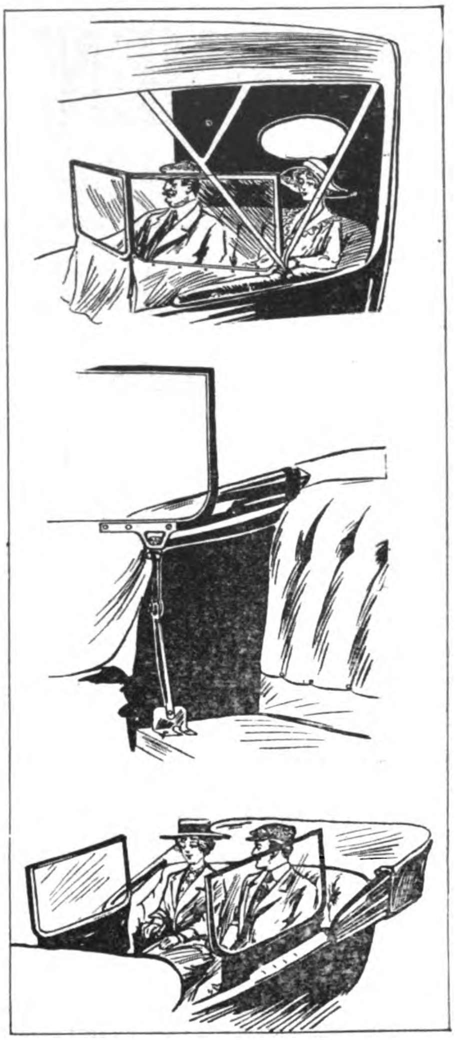
Manufactured by the Anchor Top and Body Co., Cincinnati, O. Write for prices and literature.



The Wood Motor Shovel.

The Clark Tonneau Windshield eliminates the strong wind pressure and the clouds of dust which often envelop those on the rear seat. The windshield is easily attached without disturbing the upholstery on the car. When it is not in use it is turned back out of the way, but can be brought into service by a slight pull.

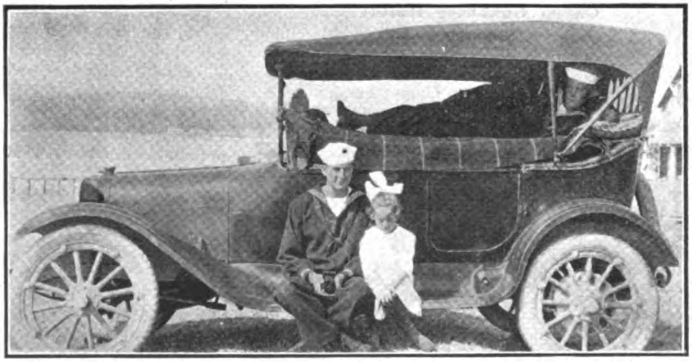
Manufactured by A. N. Clark & Son, Plainville, Conn. Write for prices and literature.


The Clark Tonneau Windshield.

The Wood Motor Shovel is made in a convenient size to be carried in the tool box of the automobile. Its dimensions overall are 6¾ by 27 inches, while the digging space of the shovel is three inches by 8½ inches. The necessity of this shovel when outfitting for a tour is easily realized and it is a valuable and essential accessory.

Manufactured by the Wood Shovel and Tool Co., Piqua, O. Write for prices and literature.

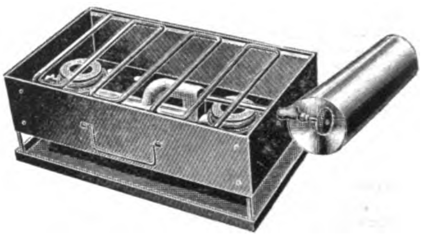
The McMillan Bed is designed to provide a comfortable spring bed while touring and is placed over the back of the car seats, providing room for two persons. It weighs 13 pounds and rolls into a bundle two feet long and four inches in diameter. It is made in a number of models to fit the various makes of cars.



Manufactured by the Auto Bed Co., Bellingham, Mass. Price, $10 to fit Fords, Chevrolets "490" and Baby Overlands. $12.50 for models to fit the Dodge, Buick, Overland, Studebaker. $15 for seven-passenger cars.

The American Folding Camp Stove is just the thing for the camping or touring trip. It is efficient and dependable. Equipped with two powerful burners it uses gasoline, burning equally well outdoors as indoors. Weighing eight pounds its size folded is 3½x8x14 inches. It is simple and easy to operate, as there is nothing to set up or assemble. It can also be supplied with heating drum.

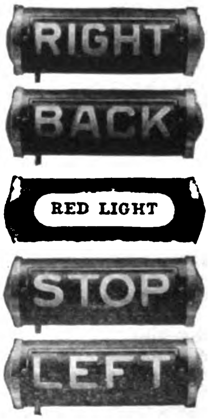
Manufactured by the American Gas Machine Co., Albert Lea, Minn. Write for prices and literature.


American Folding Camp Stove.

Pyramid Brushes are made in about three hundred different sizes for the various starting and lighting systems on the market. These brushes have been developed in co-operation with the starter manufacturers in order to get a brush which would meet the requirements of each particular equipment. This means that when you purchase a Pyramid brush you are getting the same standard brush that was designed for the lighting system of your car.

Manufactured by the National Carbon Co., Inc., Cleveland, O. Write for prices and literature.

No20 ASSORTMENT
PYRAMID BRUSHES
PYRAMID BRUSHES
PYRAMID BRUSHES



The Roedding Signal Light.

The Roedding Signal Tail Light is housed in a cylindrical shaped metal case, 10 inches by four inches. The makers claim it to be the simplest of the many signaling devices upon the market. Its operation is controlled by a toggle button mounted upon the steering column. When the button is pressed in the central position the horn is blown. When pushed to the right the letters "right" appear, two inches in height on a roller, which is inside the water proof case. When pressed to the left the letters "left" appear and other positions signal "stop" and "back," showing accurately the direction the driver intends to take.

Sole distributor, K. G. Barkoot, Detroit, Mich. Price, $18.

The Buda Valve Lifter is designed especially for the Buda engine. If an engine is to deliver its full capacity on a minimum of fuel, careful attention must be given to the matter of keeping the valves in proper shape.

The removal of valves for inspection or grinding is a difficult task with the tools usually furnished as part of the equipment of trucks and tractors. Added to this there is the liability of doing serious injury to the valve stems or push rods.

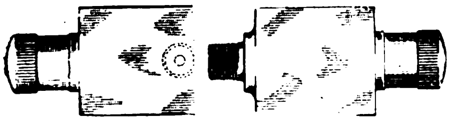
To simplify the removing of valves the Buda company has placed on the market a valve lifter, which is shown in use in the accompanying illustration. This tool can be used on all models of Buda engines except the RU. By substituting a smaller block to fit the porthole openings, the tool can also be used on that model.

Manufactured by the Buda Co., Harvey, Ill. Write for prices and descriptive literature.

Rusco Brake Lining is manufactured by specially constructed machinery. The basis is selected long fiber pure asbestos, expertly interwoven with tempered brass wire. No cotton or copper filling is used. This makes an extremely durable, but soft and flexible fabric of uniform quality throughout. A secret compound is used to permeate the brake lining and render it impervious to water, oil, heat and dirt.

Manufactured by the Russell Manufacturing Co., Middletown, Conn. Write for prices and literature.

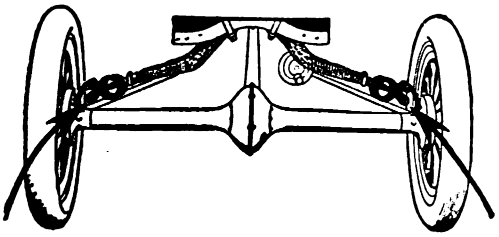
Rusco Brake Lining.



The Meckel Lubricator.

The Meckel Lubricator is a novel device, which lubricates springs, shackles and spindle bolts with oil instead of grease. The great difficulty in oil lubrication has been the control of the fluid and has been surmounted in this device by the use of a valve actuated by vibration, which permits the oil to flow only when the car is in motion. Stopping the car stops the flow of oil. The manufacturers claim the elimination of squeaks and rattles, freedom from attention except for refilling the reservoirs every 2500 miles. The attachment is simple. It fits into any of the bushings of the bolts and can be applied to a car by any one. It is made in three styles, each adapted to a special duty.

Manufactured by the Meckel Lubricator Co., 1507 Grace Ave., Lakewood, O. Write for prices and literature.

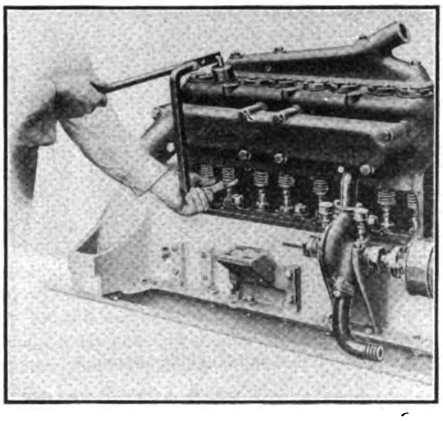


Twin Spring Shock Absorbers.

The Tong-Em-On Vulcaniser consists of a nickel plated vulcanizing tong, two copper pans—puncture and blow out sizes—and one dozen "Risk's Riskless" perforated fuses and patches.

To use, simply roughen the surface of the tube thoroughly, peel off one of the gum patches from the stack and stick it to the bottom of pan. Remove the cloth and pull the tong tight, sliding the floating rivet back in slot to hold tong closed. Put two of the patented fuses into the pan and light with a match. The whole process requires but five minutes time and the makers claim a permanent repair is the result.

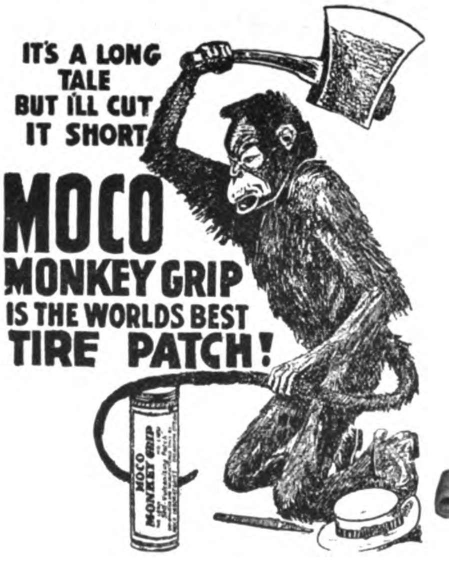
Manufactured by the Tong-Em-On Vulcanizer Co., 626 Plymouth building, Minneapolis, Minn. Price, $1.75.



Buda Valve Lifting Tool Designed for All Models of the Buda Engine Except the "RU."

Moco Monkey Grip Tire Patch has made one of the most phenomenal sales records since its introduction on the market of any similar article ever offered to the motoring public. It is manufactured by the Moco Laboratories, Oklahoma City, Okla., and Mt. Vernon, Ill., which company has enjoyed an increase in business in less than three years from gross sales of $50,000 to nearly $1,500,000. According to the manufacturers it has been recognized by the government as a standard tube repair method and is being used for repairing punctures, blow outs and holes in tubes in practically all the cantonments. It was adopted after tests had been made of 67 cold patches and tube repair methods.

Farley & MacNeill, 105-107 Federal St., Boston, Mass., have been appointed exclusive agents for the Moco Monkey Grip Patches in the northeastern states, being sole distributors for New York, New Jersey and New England.



The Economy Auto Case with 10 pounds of ice during the hottest summer weather will supply ample refrigeration for from 18 to 24 hours. Without the ice it may be used to keep foods warm. It is made of hard fiber board that is air tight and dust proof. Carried upon the running board it adds to the pleasure of touring by eating in the open, preparing the meals as wanted and keeping them fresh, clean and wholesome.

Prices and literature furnished on application to Traverse City Refrigerator Co., Traverse City, Mich.

Zit is an automobile dry wash—it takes off everything except a heavy coating of mud. It leaves a dry finish that makes the car shine. This polish restores the luster and keeps the finish from checking and cracking. It is good for furniture, as well as automobiles.

Compounded by the Westfield Chemical Co., Westfield, Mass. Write for prices and literature.

The Apco Brake Shoe Adjuster fills a long needed want for the Ford car. Without these the Ford brake shoes when half worn are useless and of course must be removed. With this adjuster, which consists of specially hardened steel thimbles, which are driven over the brake shoe cams, the brake shoes may be totally worn. After their removal the adjusters may be used over again, as they do not wear out. The installation is a matter of a few minutes using a hammer. Each set is packed in a box weighing two ounces.

Manufactured by the Apco Manufacturing Co., Providence, R. I. Write for prices and literature.

Apco Brake Shoe Adjuster.

ZIT
THE AUTOMOBILE
DRY WASH
FOR CLEANING AND POLISHING AUTOMOBILES AND OTHER FINE FINISHES
WESTFIELD CHEMICAL CO.

Twin Spring Shock Absorbers for Fords eliminate jolts, jars, strains and vibration. The Twin Spring is a supplementary spring, instantaneous in its action, leaving the leaf spring free to perform the work for which it was designed. Every road shock coming from the wheels passes through the coil springs on its way to the car body, and the shock is transformed and the life taken from it without in any way disturbing the action of the leaf springs. They are easily and quickly applied in 30 minutes to any type or car spring, and, once adjusted, never change their position.

Manufactured by the Twin Spring Co., 1000 Boylston St., Boston, Mass. Price, $10 per set (rear) for Fords and all cars.

Tong-Em-On Vulcaniser.

Bubbling Fountains.

Bubbling Fountains may be attached to the municipal water supply in any garage and they are made in a number of styles, plain or ice cooled. The wise garage man looks to the comfort of his employees for he realizes that as long as they are satisfied they will do their best work for him. The illustration shows style number 604, which is arranged to take 75 pounds of ice in a cork insulated refrigerator.

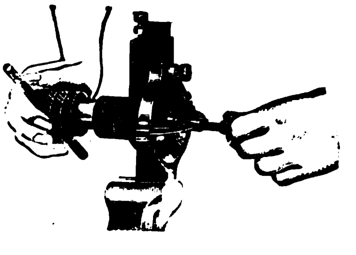
Manufactured by the Manufacturing Equipment and Engineering Co., Framingham, Mass. Write for prices and literature.

The Zorger Glar-Kilr Lens is composed of sectional cylinders one-half inch in width, with the axis horizontal. These sections are adjusted so that the rays cross or come to a focus three inches in front of the reflector. This gives a one-half inch spread every three inches or a two-inch spread every foot. The sectional cylinders are made so that the light does not attain an altitude of more than 42 inches in 200 feet. At 200 feet the spread from each one-half inch section of the glaring half of the reflector is 400 inches, 90 per cent. of which is stated to be below horizontal is diluted by diffusion approximately 800 times, not nearly sufficient to dazzle an approaching driver. The maker states that by using the cylinder he gets the same diffusion as any diffusing lens and in addition gets refraction or bending down of the rays. This lens bends rays of light down and diffuses them along the road where they are needed.

Manufactured by the Zorger Lens Co., Inc., Champaign, Ill. Write for prices and literature.

The G. B. Valve Tool is a miniature hand lathe designed especially for dressing valves. It is made of drop-forged steel, case hardened and ground until it is absolutely true. The knife can be removed and resharpened easily and is so constructed that it will dress valves of any size or material at a perfect angle of 45 degrees. The tool is so constructed that the valve must necessarily be on center when it is dressed. The use of this tool, the makers claim, will not only remove all carbon deposit, but will dress off all imperfections on the valve or seat, such as ridges, grooves, pits, etc.

Manufactured by the G. B. G. and Mfg. Co., 299-301-303 Franklin St., Hempstead, N. Y. Write for prices and literature.



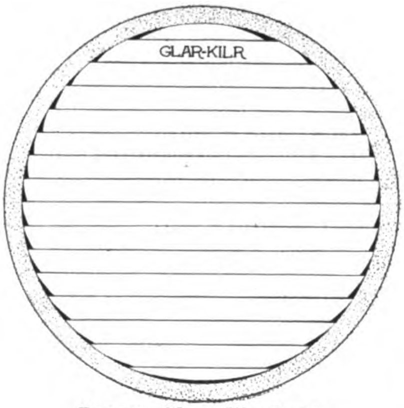
The Ajax Touring Refrigerator is made in trunk form and contains three compartments, two for eatables or bottled goods and the third for ice with a threaded compartment to prevent water leakage. It attaches to the running board and is air tight and dust proof.

Manufactured by the Ajax Trunk and Sample Case Co., 144-150 West 18th St., New York, N. Y. Price, $20.

Ajax Touring Refrigerator.

Blaxshine is jet black and of excellent covering quality, producing a black, durable finish with a shining surface like a new car fresh from the factory. The makers claim that it will stand up under any degree of heat, being especially adapted for re-enameling hoods, radiators and metal running boards. It can be put on by anyone after the car is cleaned and the enamel will dry during the night, leaving the car ready for use the next day. The package includes Blaxshine for one car, fine vulcanized brush, painter's cup, mineral wood, sandpaper and your personal monogram in gold shipped by post.

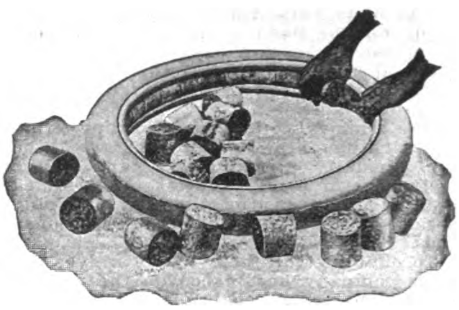
Manufactured by the Twin City Varnish Co., 208 N. Wabash Ave., Chicago, Ill. Price, $2.85.



Zorger Glar-Kilr Lens.

The Niswander Rim Remover removes and replaces demountable rims in automobile tires. The contracting and expanding is done by right and left hand threaded rods operated by a hand wheel, which give an even and steady pull, contracting the rim from one to four inches, and the rim hooks, together with the rim braces, are so constructed that the harder the pull the tighter they grip the rim in either operation. It weighs 2½ pounds and folds to a length of nine inches, enabling it to be easily carried in the tool box. This tool will work successfully on any split rim and will save time, labor and the wear and tear upon the rim necessary without its use.

Manufactured by Niswander Manufacturing Co., Quincy, Ill. Price, $3.50.



National Rubber Tire Filler.

National Rubber Tire Filler takes the place of air in the tire, doing away with the inner tube, thus making puntures, rim cuts and blow outs impossible. It is made in the best quality rubber, cut into small particles and vulcanized together in such a manner that the makers claim it will produce all the resiliency and easy riding qualities of air. It is not melted and run into the tire, but is moulded in cylindrical forms to fit the various sized casings, and is placed in the casings in lengths, after which the casing is pressed onto the rim with special tools provided for the purpose, giving the same pressure as a casing well inflated with air. When the casing wears out the filler can be removed and replaced in new casings.

Manufactured by the National Rubber Filler Co., Midlothian, Texas. Write for prices and literature.

The Oxygen Tank Truck consists of a pair of wheels on a short axle with a steel strap holding the oxygen tank that can be contracted to sufficiently hold the tank. The handle of the truck is of steel strap with a bolt and wing nut with iron handles welded on.

Manufactured by the Auto Repair and Storage Battery Works, 41 Union St., Portland, Me. Price of truck and handles, $7.50.

The Knickerbocker "Made Right" Motor Luncheon Outfit, as illustrated, is combined luncheon and suit case arranged, so that the entire equipment may be removed and the case used as an ordinary suit case when desired. This style is made in three sizes, suitable and equipped as desired for two, four, six or seven persons, and are furnished complete with cutlery and dishes or with just food boxes as desired.

In addition the Knickerbocker "Pullman Diner" luncheon case and table and the Convertible Auto Refrigerator luncheon case and trunk are popular styles, offering most practical and convenient features. All cases have compartments provided for carrying two or more of any standard thermos or vacuum bottles or jars.

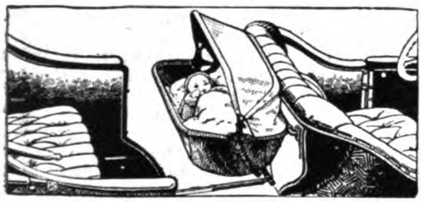
Manufactured by the Knickerbocker Case Co., Fulton and Clinton Sts., Chicago, Ill. Prices range from $13 to $42.50.

Knickerbocker Motor Luncheon Outfit.

The Overnight Bag is designed particularly for the business woman for use on trips entailing an overnight stay and for week-end visits. It is large enough to hold a night gown, shirt waist and a few other small articles. Fifteen toilet necessities made of ivory pyralin are fitted inside the cover. The case is made of high grade fabrikoid, a pyroxlin coated leather substitute of great durability. This material is quite as beautiful as leather. Is water, dirt, grease and stain proof and can be kept immaculate with soap and water. The case is lined with either fabrikoid or cloth of a harmonizing color.

Overnight Bag with Pyralin Toilet Set.

Manufactured by the Du Pont Fabrikoid Co., Wilmington, Del. Write for prices and literature.



Gordon Motor Crib.

The "Alsop-All-Spark" is claimed by the makers to make possible the use of old dead carbon choked spark plugs with as good results as can be gotten from new ones without this device. It goes much further than the saving of spark plugs, as the reinforced spark is a more positive exploder of the gasoline. When it is considered that there are more than 5400 sparks per minute in a six-cylinder engine, which runs 3600 revolutions per minute and only a certain per cent. explode the gas, it can be readily seen that a device which gives such a powerful spark will penetrate through heavy oil and spark dead carbonized plugs, will certainly cause a great deal more explosions per spark delivered.

ALSOP TRIPLE IGNITION CORP.
NEW YORK
"ALSOP-ALL-SPARK"
GUARANTEED FOR LIFE OF CAR
START
LOW TENSION

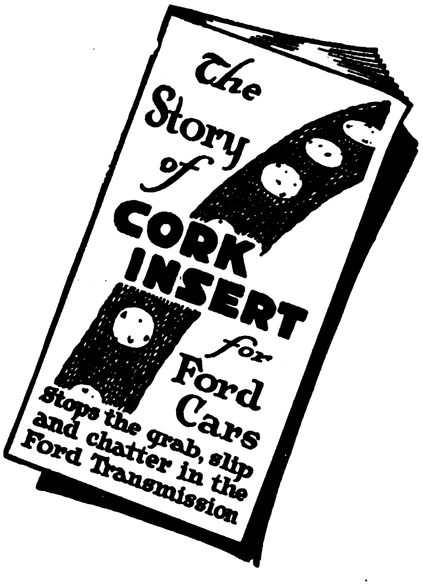
"Alsop-All-Spark."

With this device it is seldom ever necessary to change spark plugs, as a slight turn of dial on the dash will raise the voltage to such an extent that it will overcome any misfires, no matter in what condition the plug may become.

The device screws upon the dashboard and is controlled by a dial inside the car. It is connected between the spark plugs and distributor and will not interfere with any present equipment. The makers claim it to work equally well upon any ignition system. Easily attached in a few minutes.

Manufactured by the Alsop Triple Ignition Corporation, 1765 Broadway, New York City, N. Y. Price for all four cylinder cars, trucks and tractors, $6.

Cork Insert is fully described in a new booklet, just off the press, which goes thoroughly into the question of transmission action of Fords. It tells how a smoother working Ford can be had simply by taking proper thought in the selection of transmission lining. The causes of the chattering and vibration which attends the transmission action in the Ford are analyzed and the method of overcoming them clearly shown.


The Story of CORK INSERT for Ford Cars
Stops the grab, slip and chatter in the Ford Transmission

One of the features of the booklet, which is named "The Story of Cork Insert," is views of the factory where cork insert transmission lining is prepared. The big machines are shown which punch 24,000 sets of linings in an eight-hour working day. Also the rooms of girls are pictured in the act of setting the corks into the linings. One girl can set 10,000 corks in a day.

Another department of interest is the pages which give the experiences of Ford owners in the use of cork insert. After reading of the long mileage secured and the smoothness and quietness of operation, it is not difficult to understand why cork insert transmission lining has come into such extensive use during its first year on the market.

A copy of the booklet, "The Story of Cork Insert," will be mailed to anyone who will address request to Advance Automobile Accessories Corp., 56 East Randolph St., Chicago.

Eagleine Motor Oils and Gear Oil. Lubricating oil for internal combustion engines must be of the proper consistency, so that it flows freely and holds its viscosity, with a certain percentage of the resistance particles of the natural oil extracted and yet not too great a percentage of the lubricating base of the natural mineral oil removed, which gives it its quality for efficient lubrication. To ascertain the proper proportions in the refining of as near perfect a lubricant for gasoline engines as possible requires long years of experience. Eagleine motor oils were put through the most exhaustive tests for a period of 20 years and now have reached the zenith of perfection. They are refined from the natural mineral oil and contain no animal or vegetable fats that tend to decompose into glycerol and acids, which lower the lubricating efficiency. Eagleine gear oil is especially compounded to the exact consistency for efficient lubrication of transmission and differential gears and its use has shown that there is less wear on the gears and thereby upkeep expense is reduced to the minimum.

Eagleine motor oils and gear oil are put up in the company's trade marked containers that serve the purpose of cleanliness and convenience in use, as well as assuring the customers no spurious substitutes.

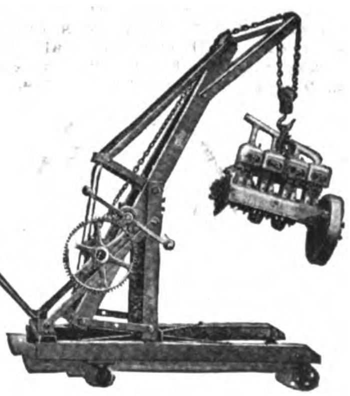
Eagleine motor oils and gear oil are prepared and marketed by Eagle Oil and Supply Co., 44-5-6 India St., Boston, Mass.

The Gordon Motor Crib is easily strapped to the back of the front seat and is held in an open position by a spring connection to the floor or back seat with an adjustable strap. When thus suspended it is free from vibration and does not interfere with entrance into the tonneau. An adjustable hood protects baby from the sun or wind and the crib is easily folded against the back of the seat when not in use.

Manufactured by the Gordon Motor Crib Co., 27 South Water street, Chicago, Ill. Price, $10.

The Manley General Utility Garage Crane combines a half dozen different tools into one and may be used for a hundred different purposes in the garage and outside on the road. It can be mounted on a truck, chassis or service wagon for use as a general wrecking crane, or if no truck is available it may be taken apart and placed in a touring car and at the scene of the wreck may be set up in five minutes by two men. It takes up little room when in use. As a portable floor crane it will lift the front and rear ends of automobiles or transport any piece such as the engine, transmission, etc., on its own wheels anywhere. Its capacity as a floor crane is 1½ tons; as a wrecking crane, two tons.

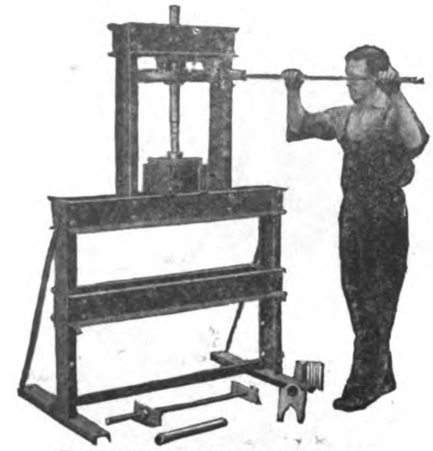
Manufactured by the United Engine and Manufacturing Co., Hanover, Pa. Write for prices and literature.



Manley General Utility Garage Crane.

The Universal 22-Ton Auto Press has a high power leverage, starting at 2200-1 pounds and automatically increasing at the end of stroke to 5000-1 pounds. This is obtained by the lever fitting into the socket on ratchet block. The pawl uses the same notches in hand wheel and tremendous pressure is obtained on the screw with little effort. An important feature of this press is that the screw being exposed at the top may be struck a sharp blow in obstinate cases, such as a rusted shaft, which pressure alone will not move. With maximum pressure the jar of the blow does the rest. No damage to the press will result, as it is designed to withstand such a blow. The low power leverage of (1000-1) is 10 times quicker than a ratchet. This press is self contained and can be moved about to suit conditions or turned over for pressing long work.

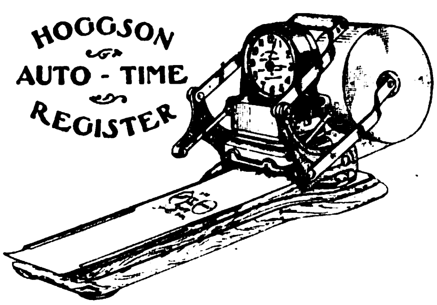
Manufactured by the United Engine and Manufacturing Co., Hanover, Pa. Price complete, $55. Write for literature.



Universal 22 Ton Auto Press.

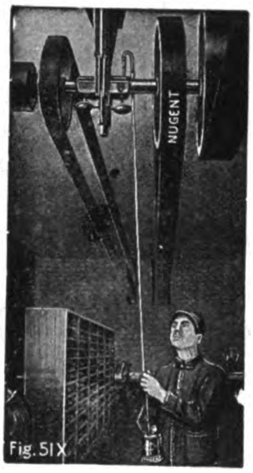
The Hoggson Auto-Time Register is designed to fill the requirements of the small shop employing only a few men. This machine not only records the "In" and "Out" of employees, but also "Sales Made," "Goods Received" or "Delivered:" from the place is recorded and initialed in fact, everything coming to or going by the person in charge. The record is made on a paper strip from the roll attached to the back of the machine and it feeds through a guide. By the aid of suitable slips or cards it will time job work, cost of manufacture, etc., without any interference with the paper roll. It is self-inking and prints clear and distinct the year, month, day, hour, minute.

Manufactured by S. H. Hoggson & Co., 27 Thames St., New York city, N. Y. Price, $25 complete.



Nugent's Shaft Oiler prevents accidents as it does the job from the floor, saves oil and time and reduces danger to a minimum. The can holds two quarts of oil and is made of very heavy material. The pump, barrel, plunger and ball check valves may be examined, repaired, replaced or recleaned at any time, as all parts are easily accessible. The opening for the long spout is tapped one-quarter of an inch (pipe tap), so by using an elbow or a 45 degree L at this point the spout may be set at right angles or 45 degrees. The curved nozzle at the top end may be changed to suit conditions.

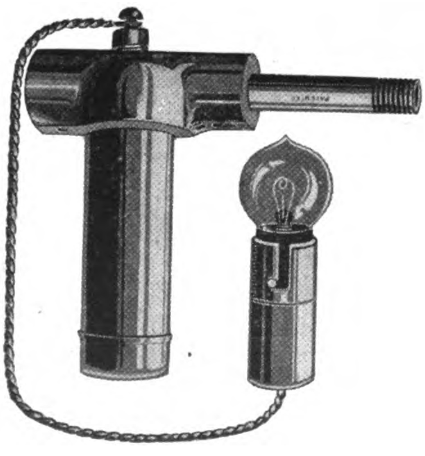
Manufactured by Wm. W. Nugent & Co., Chicago, Ill. Write for prices and literature.



Nugent's Shaft Oiler.

The "Safety First" Oil Signal is very simple in construction and is light and exceptionally well finished. There is nothing to get out of order and once it is properly installed it requires no attention. The principle is simple. As soon as the oil in the crank case gets low—within about 20 miles run of the danger point—a contact is formed at a given point, causing a light to flash, which is located on the dash in plain sight of the driver. The light will then burn constantly until the oil supply is replenished, which will automatically break the contact and the light goes out and remains out until the oil again gets low.

Manufactured by "Go" Motor Speeder Co., Three Rivers, Mich. Price, $4.50.



"Safety First" Oil Signal.

The Ever Safe Emergency Brake Shoes for Fords eliminates the drag on the brakes by allowing the expander to always lay flat with the jaws of the shoe, thus saving gas and oil. It is adjustable to the drum by enlarging the diameter of the shoe itself. By springing the jaws to one side, washers may be added or removed to take up for the wear of lining or drum, thereby allowing the expander or cam to lay flat with the jaws and a much longer travel of expander at all times, leaving the shoe suspended and contracted to its smallest diameter. It is easily installed without the drilling of holes and it takes the place of the regular cast iron brake shoe.

Manufactured by the Never Break Products Co., Bangor, Pa. Write for prices and literature.

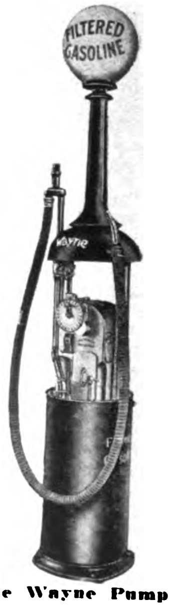
Ever Safe Emergency Brake Shoe.

The Wayne Pump solves a problem that has been uppermost in the minds of pump and tank manufacturers for 25 years—that of a continuous flow self-measuring pump. The pump stands nine feet, two inches over all and has a base diameter of eighteen inches. The housing is cylindrical in form, the upper part of which slides up and down on counter-balanced weights, much like a window. This arrangement does away with the necessity of extra space at the curb, which is always necessary where hinged doors are employed. This makes the pump weatherproof, eliminating all danger of damage to the mechanism and making it impossible for the pump to be operated by an unauthorized person.

This is a plunger pump—not a rotary pump—which has two reciprocating plungers so operated that the combined displacement is constant. Adjustments of the plunger stroke are very simple and minutely accurate. A simple adjustment makes it possible to secure any exact unit of liquid. All bearings are large and automatically oiled. No crossheads are used. The usual form of stuffing boxes are found—there being two in number. Two recording devices are attached to the pump—one 1,000,000-gallon meter and an eight-inch pre-determining counter is attached to the front of the pump. This enables the operator to obtain any quantity from one quart to 20 gallons, and repeat if necessary. Both of these devices are driven in a positive manner, making it impossible for the pump operator to obtain even the smallest part of a gallon from the pump without an accurate record of the transaction appearing on the recording devices.

The standard finish of the pump is orange enamel lettered in gold bronze.

Manufactured by the Wayne Oil Tank and Pump Co., Fort Wayne, Ind. Write for prices and literature.



The Wayne Pump.

Time to Re-tire? (Buy Fisk)

You cannot go wrong
when you sell

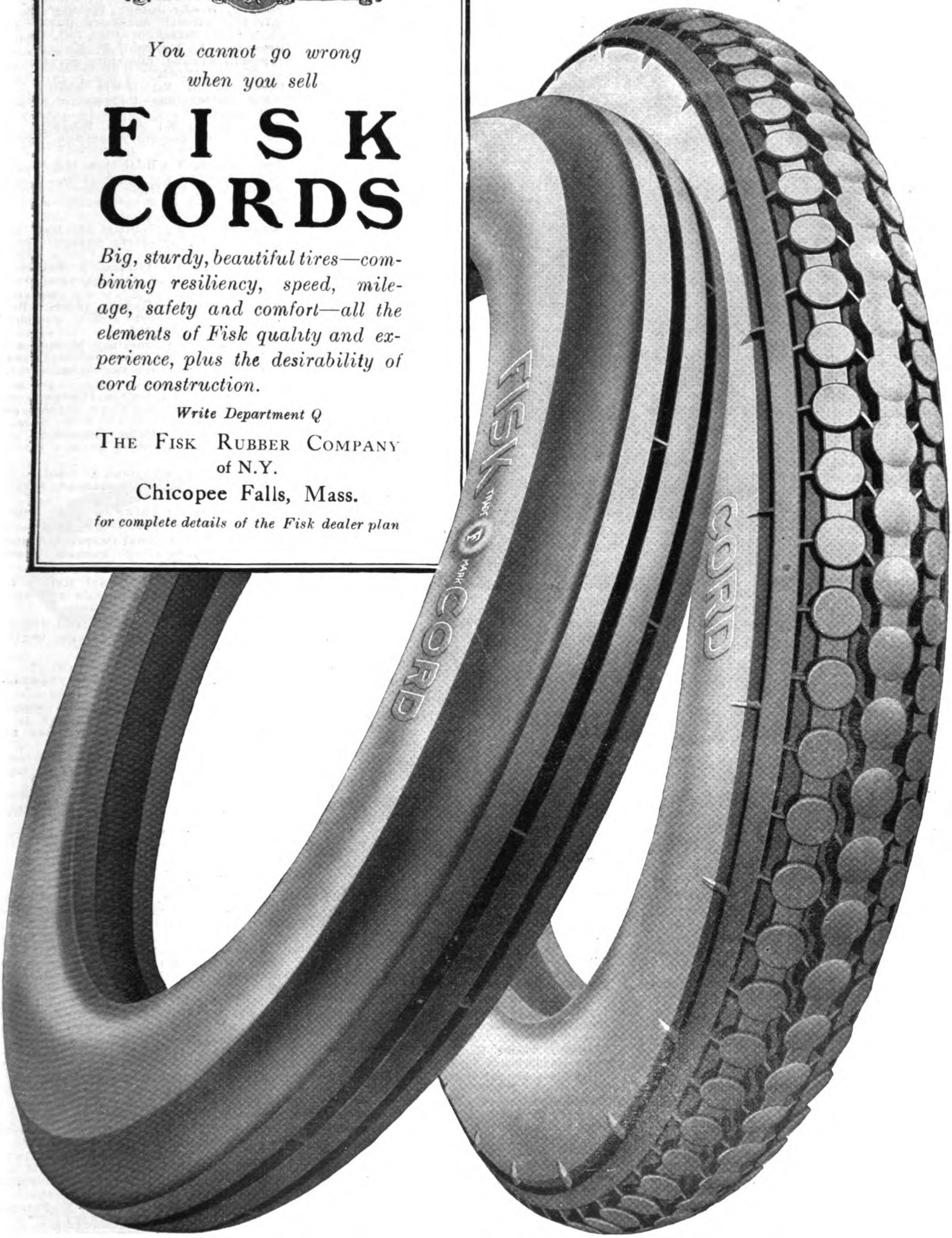
FISK CORDS

Big, sturdy, beautiful tires—combining resiliency, speed, mileage, safety and comfort—all the elements of Fisk quality and experience, plus the desirability of cord construction.

Write Department Q

THE FISK RUBBER COMPANY
of N.Y.
Chicopee Falls, Mass.

for complete details of the Fisk dealer plan



RECORD OF NEW BUILDING PLANS

Contracts Made and Plans Contemplated for Alterations or New Buildings

CONTEMPLATED PLANS AND SPECIFICATIONS.

Florence, Ala.; Smith & Babbitt; one-story garage; $51,000.

Montgomery, Ala.; L. C. Cardinal; one-story garage, 80x80; $10,000.

Montgomery, Ala.; Cole Motor Car Co.; one-story garage, 50x150.

Little Rock, Ark.; W. A. Smith; one-story garage, 80x90.

Little Rock, Ark.; Thalman & Redi; one-story garage at 1516 Louisiana street; $4000.

Sacramento, Cal.; Peter Newman, Inc.; one-story garage; $6300.

Denver, Col.; M. J. Dunleavy; one-story garage, 50x150; $15,000.

Denver, Col.; Champa Street Investment Co.; one-story garage, 75x125.

Washington, D. C.; Auburn Automobile Sales Co., 26th street and Pennsylvania avenue; two-story reinforced concrete auto building, 90x190; $175,000.

Miami, Fla.; F. W. Haskell; one-story garage; $2000.

Miami, Fla.; J. K. Dorn; one-story garage, 100x147; $25,000.

Miami, Fla.; J. T. Weathers; one-story garage; $2300.

Palm Beach, Fla.; Frank H. Clements; one-story garage; $12,000.

Atlanta, Ga.; Mrs. Flora Roy; one-story hollow tile auto salesroom; $10,000.

Brunswick, Ga.; Brown & Berrie; one-story garage, 60x90.

Clark Fork, Ida.; C. E. Dessiala; one-story garage, 50x90.

Chicago, Ill.; Emil R. Klemin, 53 W. Anstin avenue; one-story garage, 40x50; $400.

Chicago, Ill.; Consumers' Refining Co., 76 W. Monroe street; one-story garage, 25x50.

Chicago, Ill.; E. Trydl, 1322 Newport avenue; one-story garage, 18x28.

Chicago, Ill.; Oscar Johnson, 4401 N. Central Park avenue; one-story public garage, 50x125.

Elgin, Ill.; William Grunan; one-story garage; $50,000.

London Mills, Ill.; R. H. Sampson & Son; one-story garage and salesroom, 50x100; $5000.

Peoria, Ill; McDowell & Jobst; one-story garage, 70x172.

Peoria, Ill.; William H. Eblugh, 701 Seventh avenue; one-story garage, 20x42.9; $1000.

Viola, Ill.; W. D. Baxter; two-story garage, 48x90; $15,000.

Wheaton, Ill.; Consumers' Refining Co., 76 W. Monroe street; one-story garage, 25x50.

Indianapolis, Ind.; Western Oil Refining Co., 1122 Chadwick street; one-story private garage, 60x75; $5000.

Exira, Ia.; P. K. Jensen; one-story garage, 42x60.

Nevada, Ia.; S. S. Hanson; one-story garage, 100x140; $12,000.

West Liberty, Ia.; Charles Burkhart; one-story garage, 25x88; $12,000.

Clearwater, Kan.; Abel & Son Motor Co.; one-story garage, 50x130; $8000.

Geff, Kan.; J. C. Holland & Son, Mills building, Topeka, Kan.; one-story garage, 50x88; $10,000.

Hanover, Kan.; Harris Garage; one-story garage, 59x125.

Leavenworth, Kan.; John Barnes; two-story garage, 80x96; $10,000.

Wichita, Kan.; George H. Siedhoff; one-story garage; $40,000.

Wichita, Kan.; W. D. Jochems; one-story garage, 46x290.

Wichita, Kan.; O. G. Eikenberry; one-story garage, 46x290; at 237 W. Douglas street.

Wichita, Kan.; George T. Molley, 503 N. Lawrence street; one-story garage, 25x140; $2000.

Ashland, Ky.; J. H. McCleary; two-story garage, 50x100; $10,000.

Louisville, Ky.; Louisville Carriage and Taxicab Co., 205 E. Broadway; one-story garage, 50x120; $15,000.

New Orleans, La.; Gus D. Reval; two-story garage, 45x200; site cost $21,000.

Portland, Me.; A. N. Spear, Jr.; one-story garage, 11x60, at 122 26th street; $20,000.

Baltimore, Md.; Griffen Turner, 205 N. Paca street; two-story garage and show room, 25x130; $10,000.

Baltimore, Md.; H. W. Cooke, Law building; one-story garage, 25x30; $2000.

Baltimore, Md.; Louise C. Vitzthum; one-story garage. 30x108, at 2024 Hartford avenue.

Baltimore, Md.; Joseph Rutkowski; one-story garage, 54x82; $6000.

Baltimore, Md.; Thomas M. Elliott; one-story garage, 34x80, at 2313 Maryland avenue; $1000.

Baltimore, Md.; J. J. Callinan; one-story garage, 17x59, at 2320 Hartford avenue.

Baltimore. Md.; John L. Bielat; one-story garage, 65x80; $3500.

Elkton, Md.; Standard Oil Co.; one-story garage, 24x30; $4000.

Boston, Mass.; George W. and F. E. Johnson, 10 State street; one-story garage and sales room, 74x149; $75,000.

Boston, Mass.; J. Segal and H. Cline; one-story garage, 100x120, at 720-30 Blue Hill avenue.

Fall River, Mass.; James M. McLeod; one-story garage, 74x74; $6500.

Fall River, Mass.; J. M. Gagnon; one-story garage, 54x124; $6500.

Hingham, Mass.; Max Stoneberg; one-story garage, 52x70; $15,000.

New Bedford, Mass.; Antone De Costa; one-story garage, 30x50; $2500.

Somerville, Mass.; Adams Coal and Wood Co., 281 Beacon street, Cambridge, Mass.; one-story garage, 100x100.

Springfield, Mass.; C. L. Thorndyke, care Technical high school; one-story garage and machine shop, 24x53.

Waltham, Mass.; William A. Caldwell; one-story garage, 52x130, at 553 Main street; $10,000.

Detroit, Mich.; Jacob Schevitz, 195 E. Ferry avenue; one-story public garage, 82x155; $18,000.

Detroit, Mich.; Detroit Oak Belting Co., 266 High street; one-story garage, 47x52; $3500.

Detroit, Mich.; National Twist Drill Co., 1456 Brush street; one-story garage, 50x106; $10,000.

Detroit, Mich.; Mark McFadden, 2808 W. Fort street; one-story private garage; $10,000.

Milaca, Minn.; Hanson Brothers; one-story garage, 65x130.

Minneapolis, Minn.; B. Schneider; two-story garage at 1609-19 Hennepin avenue; $3000.

Sleepy Eye, Minn.; S. A. Wooldrich; one-story garage, 90x100; $15,000.

Spooner, Minn.; E. T. Eide; one-story garage, 50x80.

Stillwater, Minn.; Samuel Belisle; one-story garage; $16,000.

Wankon, Minn.; H. F. Mann; one-story garage, 30x120.

Warrenton, Mo.; Harry McGee; one-story garage, 50x133.

Gordon, Neb.; George Fowler; one-story garage, 50x100.

Omaha, Neb.; D. G. Kellogg; one-story garage, 103x128; $15,000.

Omaha, Neb.; State of Nebraska, Leo Mathews, secretary school for deaf, Lincoln, Neb.; one-story garage, 34x26; $2000.

East Orange, N. J.; North Jersey Building Co., 614 S. 14th street, Newark. N. J.; 15 individual garages; one story high; $6000.

Newark, N. J.; Federal Real Estate Co., 295 Passaic street; one story; 25x100.

Newark, N. J.; Joseph Weisberger, 96 Hunterdon street; one-story public garage, 50x100; $6500.

Brooklyn, N. Y.; Emil F. Kunger, 239 Greenpoint avenue; one-story private garage, 75x95; $12,000.

Brooklyn, N. Y.; Lewis Aulick, 200 Stockton street; one-story public garage, 46x100; $10,000.

Brooklyn, N. Y.; Annie Efarkin, 203 Sand street; one-story garage, 30x50; $35,000.

Brooklyn, N. Y.; B. Greico, 172 Russell street; one-story garage, 50x100.

Brooklyn, N. Y.; Isaac Miller; one-story garage, 111x120, at Troy avenue and Carcall street; $40,000.

Brooklyn, N. Y.; William H. Todd, 139 Ruthland road; one-story garage, 23x33; $5000.

Brooklyn, N. Y.; William J. Smith, 63 Adelphia street; one-story garage, 30x50; $25,000.

Brooklyn, N. Y.; Rodney Improvement Corporation, 44 Court street; one-story garage, 100x200; $40,000.

Brooklyn, N. Y.; American Manufacturing Co., Noble and West streets, New York; one-story garage and machine shop, 68x195; $25,000.

Brooklyn, N. Y.; Beckie Diamond, 375 Rockaway avenue; one-story private garage, 25x50; $2000.

Brooklyn, N. Y.; Ralph Rothschild, 207 Norman avenue; one-story garage, 25x100; $2000.

Brooklyn, N. Y.; Thomas F. Lantry, 214 Carroll street; one-story garage, 25x100; $5000.

Brooklyn, N. Y.; Parkway Auto Repair Shop; one-story garage, 25x60; $4000.

Brooklyn, N. Y.; Samel Carrol, 819 Glasson avenue; one-story garage, 23x60; $3500.

Brooklyn, N. Y.; Michael Reilly, 211 Bond street; one-story garage and shop, 50x100; $10,000.

Brooklyn, N. Y.; Isaac Bermand, 296 Atlantic avenue; one-story garage, 20x100; $35,000.

Brockport, N. Y.; Standard Oil Co., 26 Broadway, New York; one-story garage, 32x60.

Buffalo, N. Y.; City of Buffalo, department of parks and public buildings, room 6, Municipal building; two one-story garages, 18x20.

Buffalo, N. Y.; King Sewing Machine Co. 90 Welland street; one-story garage, 62x105.

Buffalo, N. Y.; Cyrus P. Lee, Norwood and Utica streets; one-story garage, 40x50.

Jamaica, L. I., N. Y.; John Leonardi; one-story garage, 95x106; $20,000.

Jamaica, L. I., N. Y.; Martin Wohl, P. O. Box 274; one-story public garage, 80x100; $20,000.

Long Island City, N. Y.; Meyer Weishberg; one-story garage, 50x98; $7500.

Long Island City, L. I., N. Y.; Louis Gold; one-story garage at Sixth street and Jackson avenue; $20,000.

New York, N. Y.; F. A. Cella; one-story garage, 38x75, at 102-04 West 50th street; $10,000.

New York, N. Y.; Cranford Co.; one-story garage, 150x175; $50,000.

New York, N. Y.; N. S. Dike; one-story garage, 100x120, at Lexington avenue and Nostrad street; $20,000.

New York, N. Y.; L. A. Aneco; five-story garage at 541-51 W. Broadway; $200,000.

New York. N. Y.; Delaney Realty Co.; four-story garage, 34x92, at 325-27 East Ninth street; $20,000.

New York, N. Y.; Thomas B. Watson; one-story garage, 100x148; $25.000.

New York. N. Y.; New York Railway Co., 165 Broadway; one-story garage, 100x189; $20,000. Lessee Peter Frans Trucking Co., 130 West Third street.

New York, N. Y.; Thomas F. Farrell; one-story garage, 48x70; $10.000.

New York, N. Y.; Isadore H. Kempner, 17 W. 42nd street; two-story garage, 75x184; $30,000.

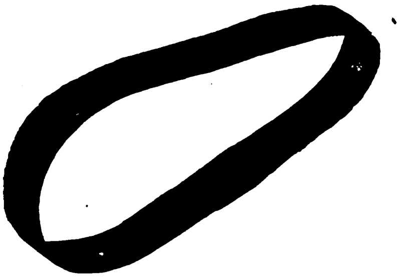
C. H. GRESSLEE DISTRICT SALES MANAGER ALL-AMERICAN TRUCK.

Charles H. Gresslee has been appointed district sales manager for the middle western section of the country for the sale and distribution of the All-American AA one-ton truck.

For the past 18 months Mr. Gresslee has been division sales manager for the Selden Truck Sales Co., having an office at Cincinnati. Prior to his connection with the Selden company he was for three years general manager of the Union Petroleum Co. of Philadelphia and one year sales manager of the Franklin Oil and Gas Co. of Bedford, O., and for three years vice president of B. A. Stuart & Co., Inc. of Chicago.

CONSTANT TIGHTENING RUINS ANY FAN BELT IN A FORD.

"The fan belt is a source of untold annoyance to many Ford owners and the biggest cause is—Mr. Owner himself." So says an official of the company that makes Cork Insert Fan Belts. "Perhaps the true cause of the trouble," he adds, "is that tightening the Ford fan belt is made too convenient. It is such an easy matter to tighten the belt a half turn that some owners get in the habit of doing it every time the hood is raised or every time they start out for a ride. This is done with the misguided notion that a tight belt is an efficient belt. The Ford owner knows that the water in his radiator frequently boils. He knows that this is often caused by a slipping fan belt. But there is such a matter as overdoing a good thing and the tightening up habit comes under that head. There is just so much stretch in a fan belt. Any belt when stretched beyond its normal limit is on the road to ruin. Its service from then on will be one of constan dissatisfaction. Cork Insert Fan Belts are designed to give perfect service without the need of their being stretched taut. If properly used they will not stretch and never will slip. In other words, they give perfect service when run quite loose. The looser you can run a fan belt the longer it will wear. We are even attaching pasters to Cork Insert Fan Belts giving just this kind of advice."



The Cork Insert Fan Belt.

An interesting booklet has just been issued by the Advance company telling about their transmission lining and fan belts for Fords, and a copy can be secured by adressing the Advance Automobile Accessories Corporation at 56 E. Randolph St., Chicago.

Automotive and Accessories Exposition at Chicago Proved Successful From Business Viewpoint

Staged on the $5,000,000 Municipal Pier at Chicago, beginning Sept. 14 and continuing to the 21st, the Automotive and Accessories Exposition was a decided success. It was stated to be the largest event of the kind ever organized in the West, and possibly in the country, and the purposes were such as to attract hundreds of thousands of visitors. The show was an exhibit of trucks, tractors and accessories, and it was conducted by the Automotive and Accessories Exhibition Co.

The management maintained that it was distinctly a war exhibition from the fact that only essential machinery needed to win the war was displayed. The exposition served to bring together the products of the automotive industry that are commercial necessities, that conserve man power, that facilitate transportation, that relieve railroad congestion and stimulate more intensive agriculture, and also to bring before the people the attitude of the automotive industry toward the government in whatever will contribute the successful prosecution of the war.

There were, of course, other aspects, such as broadening the means of distributing, creating interest in the construction and maintenance of public roads necessary for commercial, industrial and military activities, as well as developing the markets for products of the truck and tractor industries. Necessarily there was keen manifestation of patriotism, and this was supplied in part by the decorations, while through the different meetings, lectures and conventions there was an atmosphere of national solidarity that could but be elevating and inspiring.

The visitors to the pier saw stretching before them approximately a half mile of floor area given over to display of industrial machinery and products, with settings of the flags of America and her allies, and combinations of color effects, the spaces being defined by white and gold lattice work, with mammoth painting on canvas draped on the walls that depicted the progress of industrial life in America covering a period of about a century.

The displays were made by nearly 200 manufacturers, and besides the exhibits of trucks, ranging from the smallest to the largest, equipped with various types of bodies for widely differing purposes, there was an equally comprehensive department given over to farm tractors of all sizes and makes. The exhibition of body equipment for trucks was especially interesting. The department for agricultural implements was large and it attracted great numbers, for seemingly there was never so much interest in the production of food crops.

The accessories exhibits were seemingly numberless and these included tires, tire fillers, tire chains, speedometers, carburetors, piston rings, electric lighting and starting systems, engine governors, engines, spark plugs, lubricants, electric rectifiers and transformers, tools and automotive utilities of all kinds, that were displayed so as to attract the attention of those who were even indifferent to the general features of the spectacle.

The exposition was attended by thousands of farmers from Illinois, Wisconsin, Iowa, Michigan, Ohio, Indiana and other Middle West states, and there were conventions of threshermen and various classes of business men that ranged from one to several days, with programs of speaking and discussions of subjects of class and even national interest.

Statement is made that the exhibitors as a whole were very successful in making business connections, some of them adding materially to their organizations, while orders were extremely plentiful, many of them in large volume. In fact the actual transactions were surprisingly in excess of expectations.

The attendance was quite beyond what was anticipated, and there was supplementary entertainment for the visitors, for each evening a space was cleared and dancing was indulged in by large numbers. The management endeavored to make the exposition different from any exhibition ever held, and with the abundant space afforded by the municipal pier subsequent shows staged there will no doubt be extremely productive.

FAWSCO OIL COCK WRENCH.

The condition of the raw material and labor market has made it necessary for J. H. Faw, Inc., to advance the list price of the Fawsco Improved Combination Oil Cock Wrench Gasoline Gauge and Cleaner from 35 to 45 cents. It became necessary to either deteriorate the quality of the product or increase the price to meet conditions and it was decided to maintain the Fawsco standard at a slightly increased price.

Mr. Faw in a characteristics vein with which the trade is quite familiar, says that to a Ford owner who has lost his Sunday religion by soiling a clean shirt in an endeavor to find out whether he has sufficient oil in his crank case for a day's run, the slight increase in price cuts no figure; in fact, the demand has considerably increased since the new price went into effect.

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.

The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.
Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts.
The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

ELECTRIC GLUE POT

Mabey's Dry Heat Electric

Glue Pot

No flame; no soot or smoke. All danger of fire is eliminated

Capacity	Price without cover
1 qt.	$ 9.50
2 qts.	11.00
3 qts.	12.75
4 qts.	15.75

Century
Automobile Cigar Lighter. Complete $1.00 Each, F. O. B. Indianapolis.

DEALERS—Write For Prices.

MABEY'S ELECTRIC & MFG. CO.
968 Ft. Wayne Avenue INDIANAPOLIS, IND.

Do Tiring Repairing

—but use only the most approved outfits

AKRON-WILLIAMS
A-W
PRODUCTS

Akron-Williams

TIRE REPAIR EQUIPMENT

Designed with the help of the foremost tire engineers; used, recommended and sold by all leading tire companies.

An outfit for every size shop—send for new descriptive catalog.

The Williams Foundry & Machine Co.
Ash Street, Akron, Ohio.

The Accessory and Garage Journal

$2 the Year, 20 Cents the Single Copy.

The only American publication devoted exclusively to the Power Vehicle and Allied Industries and Trades. A guaranteed circulation of 25,000 copies to trade interests only.

Address all communications to the

TIMES BUILDING
Pawtucket Rhode Island

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

Strengthen Your Advertising Literature

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

Ross-Gould Mailing Lists St. Louis

Burke
Automobile Products

Automobile Devices Company

Sole Manufacturers

Real Estate Trust Building, Philadelphia
First National Bank Building, Chicago
2010 Broadway, New York

BUNTING BEARING BRONZE

BUNTING CORED BARS

The unusually low co-efficient of friction of Bunting Bearing Bronze puts it in a class by itself, which spells satisfied customers and increased sales. Secure your share of this business by supplying yourself now with Bunting Cored Bars. Always allow 1-16" for inside and outside finish.

All leading jobbers
Ask for catalog N

TheBuntingBrass & Bronze Co.
727 SPENCER STREET
TOLEDO, OHIO.

BUNTING BEARING BRONZE
B.B.B. CO.

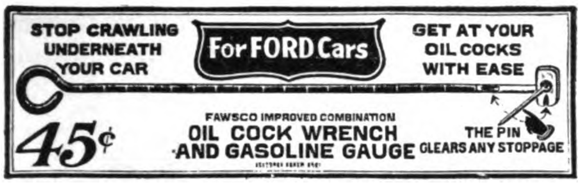
IT'S STANDARD

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3⅛
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15⅛
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20

SELL A TOOL

A PATENTED WRENCH WITH CLEANING PIN



STOP CRAWLING UNDERNEATH YOUR CAR

For FORD Cars

GET AT YOUR OIL COCKS WITH EASE

45¢

FAWSCO IMPROVED COMBINATION
OIL COCK WRENCH
AND GASOLINE GAUGE

THE PIN CLEARS ANY STOPPAGE

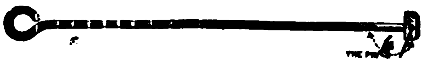
Facsimile of Display Card furnished with each dozen

A notched stick will turn an oil cock but it may be stopped up instead of empty.

The cleaning pin is patented.

FAWSCO IMPROVED COMBINATION

OIL COCK WRENCH AND CLEANER AND GASOLINE GAUGE



The tool—22" long

This tool is the one most needed by all owners of Ford Cars as it will not only accurately measure the Gasoline in your tank but provides the only sure means of learning whether you have oil in the crank case or not.

Made of coppered Bessemer steel rod, nickel plated and black enameled and is guaranteed to give complete satisfaction.

Packed 12 in a heavy corrugated carton, one of them mounted on a display easel, the balance in separate envelopes.

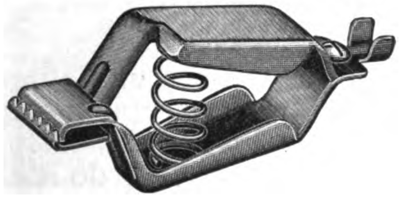
Your Jobber can supply

Manufactured By

J. H. FAW, Inc.

37 WARREN STREET **NEW YORK CITY**

UNIVERSAL BATTERY CLIPS

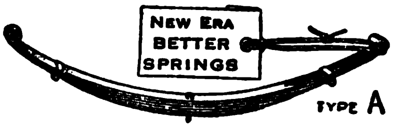


Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals. No. 21-A—lead plated—1½" **spread of jaws.**

Sample mailed postpaid for 15c in stamps.

Single Lots, Each 20c. Lots of 10, Each 15c.
Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.



New Era "Better" Springs Stop The Breakage

New Era "Better" Springs are fully guaranteed, without restrictions, against sagging or breakage for one year and guaranteed to match in load depression the other springs on the car.

Dealers everywhere sell them. Demand New Era "Better" Springs for your car.

New Era Spring & Specialty Company
1177 Hamilton Ave., Grand Rapids, Michigan.

CHASE Leatherwove "Is like the hide in most respects In some respects its better"

CHASE MOHAIR VELVETS FOR UPHOLSTERY

CHASE DREDNAUT Motor Topping

CHASE PLUSH AND WOOL MOTOR ROBES

Familiarize yourself with Chase Products.

The choicest of upholstery fabrics for motor cars, Leatherwove or Mohair Velvets.

Wonderful robes for the Motorists.

L. C. CHASE CO.
BOSTON

New York **San Francisco** **Detroit** **Chicago**

ADAMSON

VULCANIZERS

The Only Complete Line

MODEL "E" 5-Minute Vulcanizer repairs tube punctures—Price $1.00 complete.
MODEL "U" repairs tread cuts and abrasions, mends inner tubes—Price $2.00 complete.
MODEL "T" makes ordinary tube repairs—Price complete $1.50.
MODEL "S" for garage use, makes tube repairs up to 12 inches—Price complete $12.00.

Sold by Jobbers and Dealers Everywhere.

ADAMSON MFG. CO., - - - East Palestine, O.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

You May Get Mad—
But

Most men get hot under the collar when you try to tell them about their own business, but they cool off mighty quick when they find you can tell them how to make and save money.

You operate a truck or delivery car. You do not know what it costs you to operate it and to save your life you cannot tell what the vehicle earns or what it is worth to you. You do not know whether it is a money maker and you are really helpless when it comes down to actual cost or earnings.

We supply a simple, complete system that is almost self operating for any make or size of truck and one that will fit in with your regular bookkeeping. If you do not keep books, it is of even more value to you. YOU CAN START AND KEEP IT GOING WITHOUT ANY SAMPLES OR EXPLANATIONS. There are 350 day cards, a day card carrier and an annual record book. We sell this system for $6.00 and the price includes one year's subscription to Motor Truck. If you are already a subscriber the price is $5.00.

Each system is complete for one truck and good for 12 months. The cost per system after the first one is purchased is $4.00. They are shipped by express and cash should come with order. You can pay $4.00 or $5.00 a year for a truck accounting system when it costs from $15 to $50 a day to operate a vehicle and the investment is from $1500 to $5000. You know what a horse would cost to maintain yet you are all at sea about your truck.

It will cost you fifty times as much to prepare a system and then you would never use it. Our system will cost you less than what you would pay for 200 cards or letter heads. Complete instructions with the system. A 15 year old boy or girl can keep the records for one or 100 trucks and do it easily.

We guarantee this system to be 100% right to fit in any line of business, and to give every detail in connection with truck operation, cost and earning. Just write shipping instructions clearly, enclose $6.00 for the first system and a year's subscription for Motor Truck and $4.00 for each additional system if you operate more than one truck, and you will know more about your business in 30 days than any other man who does not keep records. You will know it all and you will catch all the leaks and stop the losses.

If you do as we suggest, you will make the biggest and best business investment you have made in a long time and one that will earn dividends every working day in the year. No man can make money with a truck unless he knows exactly what his operating expenses amount to.

Address Record Department

MOTOR TRUCK

Pawtucket Rhode Island

Do As We Say And Make Big Money

Open a Tire Repairing Shop. All the work you can do. Big profit on every job. We give instructions, sell you complete equipment and tell you how to start.

We show you everything, send you names of men formerly working for small pay; now doing flourishing business. Tire Factories say we have the only vulcanizer that operates upon CORRECT principle—that repairs tires exactly as they were made—

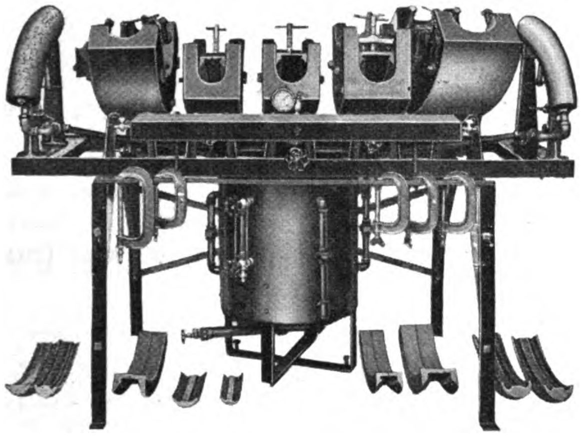


Illustration shows Vanderpool 5 cavity model that does every kind of repairing ($100.00 worth a day). Also made in 2 and 3 cavity (smaller) size.

VANDERPOOL VULCANIZER now used by veteran tire repairers after trying all other makes. Cheapest to operate. ***Pays for itself.*** 5 Cavity Model does $100 worth of work a day. (Smaller 2 and 3 cavity sizes also.) Millions of tires now in use and need constant repairing. You cannot fail. Write us at once for ***Tire Repairing Manual*** and full particulars. Biggest money-making business now open to you. Write today.

In Answering Address Department H.

WM. VANDERPOOL CO., SPRINGFIELD, OHIO

For "Every Other Car"

GARAGE REPAIR SET
FOR FORD CARS
G.T.D.
No. 2501

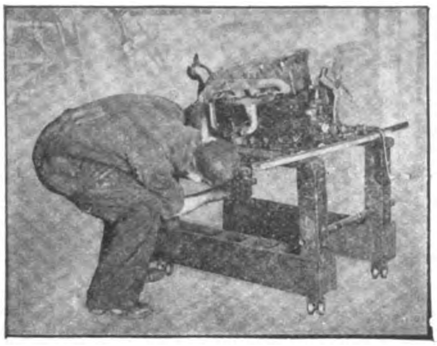
Here is a complete Automobile Screw Plate for Ford cars, consisting of Taps, Dies, Reamers, Stocks, Tap Wrenches fitted for the requirements of the Ford. It is called a Garage Repair Set, but is equally valuable to the dealer and car owner—in fact every one who has occasion to care for a Ford car can use and needs this set. It is furnished in a well made wooden box, handy for general use and to carry on the road to repair jobs.

As Ford led in standardized production of automobiles, so has G. T. D. led in the standardization of screw threads. This set consists of selected G. T. D. products to fit the Ford requirements. It is a sound investment, as proven by the large numbers sold and in use.

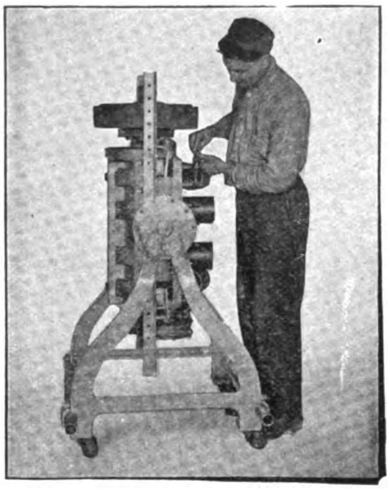
On sale by the best dealers—write us for particulars and catalog.

GREENFIELD TAP & DIE CORPORATION
Greenfield, Massachusetts, U. S. A.
New York, 28 Warren St. Chicago, 13 South Clinton St.
Canadian Plant, Wells Brothers Company of Canada Limited, Galt, Ontario.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)



THE OLD WAY
Expensive and Inefficient



THE CONTINENTAL WAY
Saves Time, Money and Labor

CONTINENTAL AUTO PARTS CO.
Continental
KNIGHTSTOWN, INDIANA U.S.A.

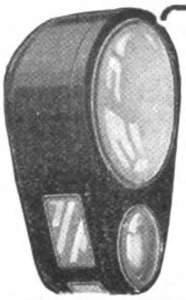
Would You Read Your Paper Upside-down?

Why ask your mechanics to stand on their heads to repair a motor?

—DON'T—

Install Continental Motor Stands Today

Catalogue on request



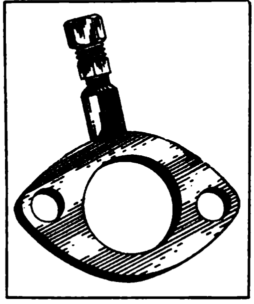
King Safety Tail Light takes the fear out of night driving—

Equip your car with one NOW

For particulars write

KING-BULL MFG. CO.

123 E. Ontario St.
Chicago.



The Puritan Inlet Gasket

A practical, non-leakable connection for auxiliary air valves, moist air devices, primers, decarbonisers and other like equipment.

Sets between carburetor and manifold. Guaranteed a perfect fit and will not break. Drilled and tapped for one-eighth inch pipe thread.

List Prices—80 cents to $1.10 from 1 inch to 1 7-8 inches. Other sizes in proportion. When ordering, state make, size and shape of carburetor.

The Puritan Oxgin Iza

Takes steam from radiator cap. Adds greatly to the power SAVES GASOLENE and ELIMINATES CARBON. It is controlled from seat. Guaranteed to afford full satisfaction No drilling or extra tanks.

LIST PRICE $12.00

Order today or send for particulars. These are money-saving devices that add to car efficiency.

Jobbers and Dealers: These are fast sellers. Send for discounts.

THE PURITAN MACHINE WORKS,
7 Hersam Street Stoneham, Mass.

NEW DEPARTURE BALL BEARINGS

Strength
Stamina
Service

The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

GET FULL MEASURE OF SPRING

The far-reaching Guarantee under which

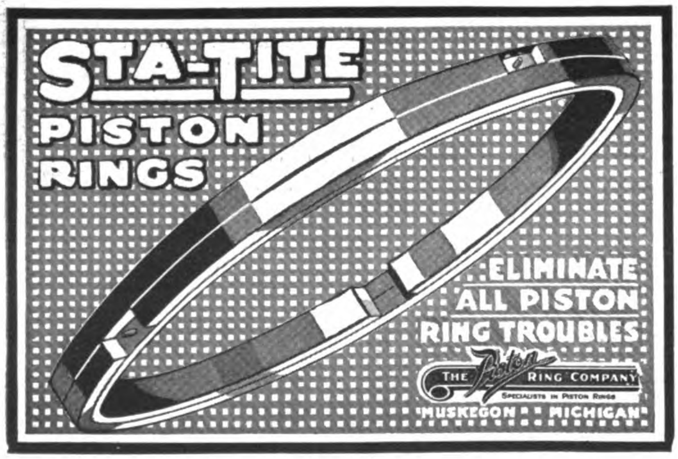
HIGGINS QUALITY SPRINGS
For Replacement

are sold—years of successful usage *back* of them—the new, improved principle of construction give you *positive protection* against imperfections—breakage and bother.

Best for the *dealer* because they deliver greatest worth in wear to *user*. Write for Trade Discounts and Big Catalog listing 500 different styles.

HIGGINS SPRING & AXLE CO., Dept. 929 Racine, Wis.

NO BOLT — NO HOLE — NO HUMP — NO JOLT



WM. B. SCAIFE & SONS CO.
PITTSBURGH, PA.
BRAZED
AIR TANK

SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

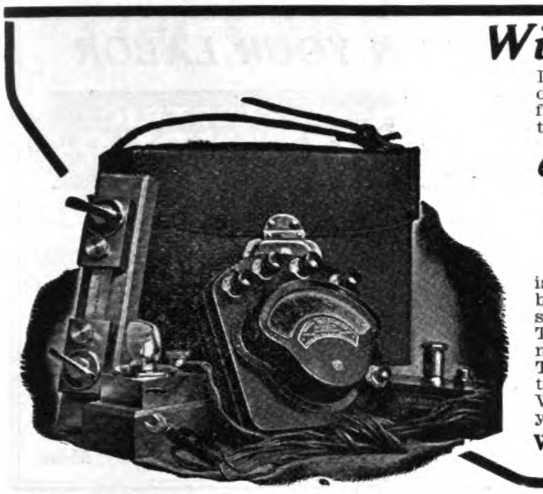
Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)



Will Somebody Else Get Your Share?

If you can repair and adjust Electrical Equipment, you will get the cream of the garage business and make more money. With the increasing demand for service of this sort, you must equip to handle the business, or lose it to your more enterprising competitor.

Model 280

Weston

GARAGE TESTING INSTRUMENT

is your one great and urgent necessity to enable you to locate electrical troubles quickly and apply the proper treatment to remedy them. Its possession will place you a long way ahead of your competitor not so equipped. This instrument is extremely accurate, durable and serviceable. It is the most practical electrical equipment you can install.

The Weston Company is pre-eminent throughout the world in the production of highest grade Electrical Precision Instruments.

WRITE US NOW for our Special Proposition to Garage Owners. It will show you how you can handle electrical apparatus intelligently and profitably.

WESTON ELECTRICAL INSTRUMENT CO., 103 Weston Ave., Newark, N. J.

23 Branch Offices in the Larger Cities

AUGLAIZE HOIST

LABOR SAVING

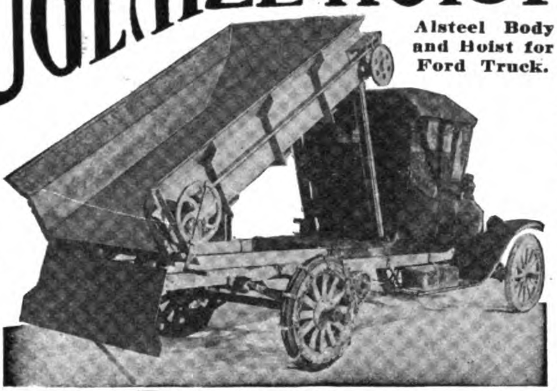
The Quadruple Worm Gear Easily Turns the Trick

A boy can raise 4 tons in three minutes with the Auglaize Hoist. Weighs less than any other and covered with a liberal guarantee. Built in sizes up to 5 tons. **Prices up to 1½ tons, $83.00; from 1½ to 5 tons, $109.00.**

AUGLAIZE ALSTEEL BODIES

Staunchly constructed of all steel and guaranteed against defective material and workmanship. Will carry 50% overload.

Prices range from $150.00 to $225.00, according to size.



Alsteel Body and Hoist for Ford Truck.

TIME SAVING

Auglaize Special Alsteel Body and Hoist for Ford Truck

Carrying capacity from 2700 to 3000 lbs. of gravel, sand, crushed stone or coal; approximate weight, 550 lbs.

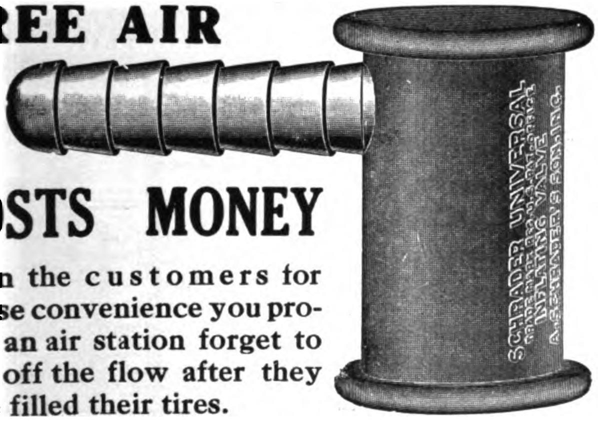
Price, $187.50. Equipped with Auglaize Powerful, Speedy, Light-Weight Hoist.

Dealers allowed a liberal commission and given selling cooperation. Write at once for catalog and sales plans.

THE AUGLAIZE MOTOR CAR CO.

New Bremen - - - Ohio.

FREE AIR



COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Automatic Inflating Valve

to your air hose.

Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve.

Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.50 in U. S. A.

W. S. S.

We Suggest Stamps
War Savings Stamps
Without Shells Soldiers
Would Soon Succumb
War Savings Stamps
Will Supply Soldiers
With Shells

Buy all you can and help to win the war.

Manufactured by **A. SCHRADER'S SON, Inc.**

800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to owners of pleasure cars.

TRIPLEXD
TRIPLEXD
GASOLINE HOSE

METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

Write to Dept. J-10 for illustrated matter and prices.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

Imperial Primer

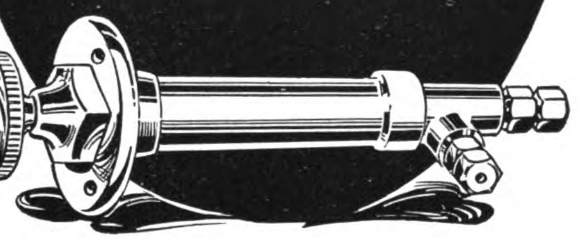
A Profit-Line For Winter

Motorists everywhere are looking up the live dealers and investing in the IMPERIAL PRIMER, the one device that Makes Cold Weather Starting Easy.

Easily and quickly installed on any make of car. Price $6.00 complete.

Write today for our proposition.

IMPERIAL BRASS MFG. CO.
517 S. Racine Ave., CHICAGO, ILL.



PROFIT ON YOUR LABOR

STENMAN ELECTRIC VALVE GRINDER

Repairers' need it; Efficiency prompts its use; Scarcity of workers demand it.

In twenty minutes eight valves can be ground easily and accurately. A perfect job guaranteed. A novice can operate it. The old way by hand takes two hours or more with uncertain results. Saves the time and adds it all to profits.

Plugs in on any lamp socket. A or D current, 110 or 130 volts. Made for higher voltage when required.

State voltage desired when ordering.

Sold by dealers or direct.

The Stenman Electric Valve Grinder Co.
42 Southbridge Street, Worcester, Mass.

CARE AND REPAIR OF TIRES

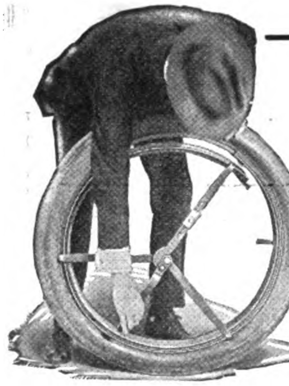
FREE

To Motorists!

Write for this wonderful tire book today. Learn how to get more tire mileage and better tire service. This book shows you. Explains how hot weather affects your tires and reduces tire mileage—how to overcome it. Tells of proper inflation for all seasons. Explains how to keep your spare casings and tubes from deteriorating. All these and a number of other tire questions answered.

Write for it A postcard brings "Care and Repair of Tires" to you free. No obligation. We want every motorist to have a copy. Write for yours today.

C. A. SHALER CO., 256 Fourth St., Waupun, Wis.
(Largest Manufacturers of Vulcanizers in the world)



REMOVE *ANY* RIM

with the

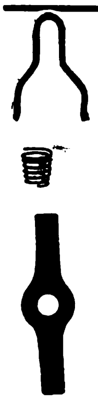
"Lawco" Rim Tool

(Patents Pending)

Do in a minute what now takes an hour without injury to rim, tire, or valve stem. Use the "Lawco" Rim Tool. Closes compactly. Weighs 5½ pounds. Only $3.50.

Dealers write for proposition

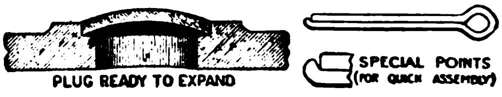
Dept. G. THE F. H. LAWSON CO., Cincinnati, Ohio



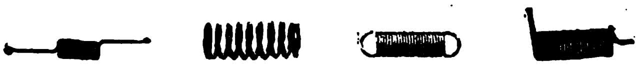
SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

16 lbs. Assorted Springs	**$2.00**
25 lbs. Assorted Cotters	**5.00**

Subject to Market Changes.
Send for Catalogue.



Welch Patent Expansion Plug.
For Closing Core Holes.
M. K. HUBBARD SPRING CO., Pontiac, Mich.



TO GARAGEMEN

The B. F. S. Valve Grinder

SAVES TIME — LABOR
MORE UNIFORM RESULTS

It is a compact, portable motor driven device, capable of grinding perfectly the valves of internal combustion engines in a fraction of the time required by hand methods.

Send for Descriptive booklet Today.

B. F. S. Manufacturing Co.
54 Hermon Street
Worcester, Mass.

ELECTRIC BFS VALVE GRINDER

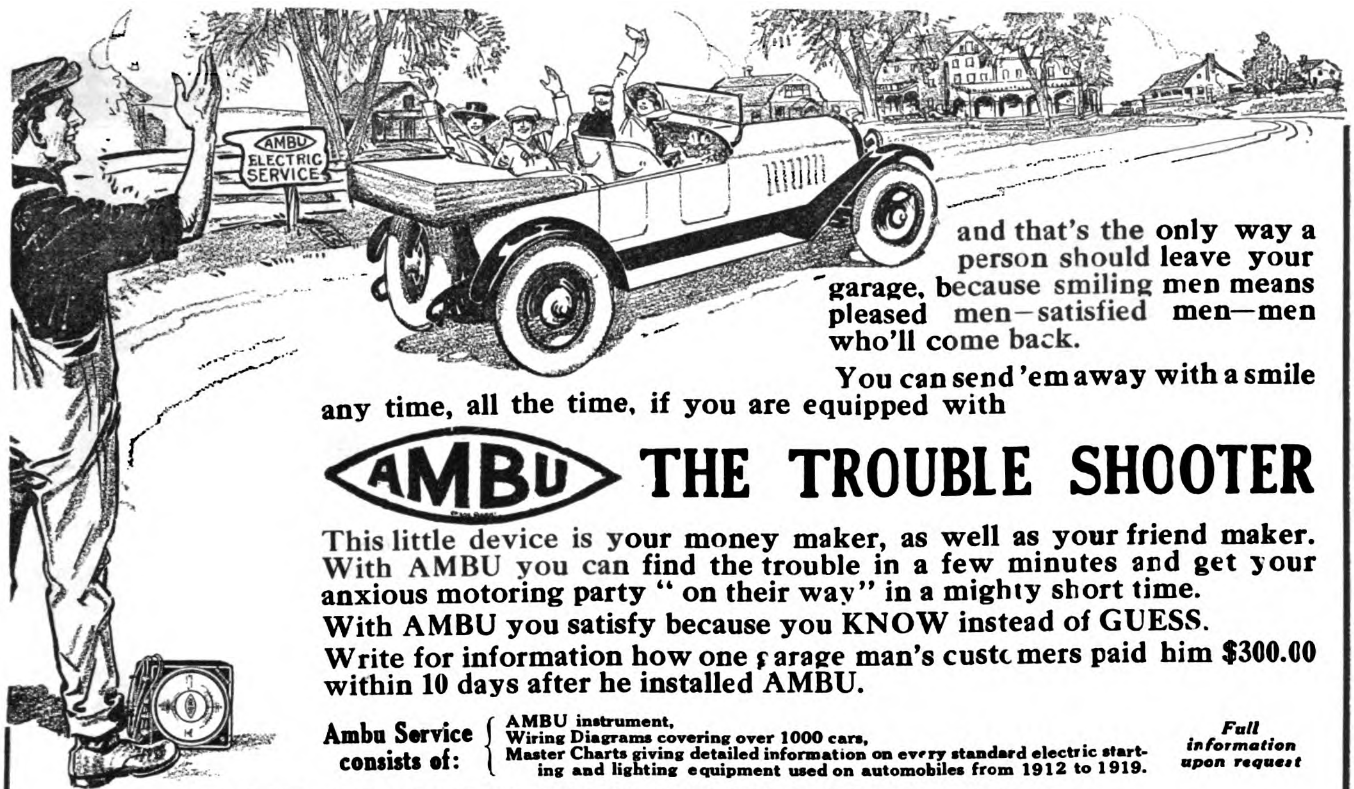
The MANLEY GARAGE AND SHOP EQUIPMENT

Every garageman and repairman should get our catalog. You'll find in it just the time and labor savers you need, and their prices will astonish you by their moderateness.

Send for your copy of this catalog today

THE UNITED ENGINE & MFG. CO.
Hanover, Pa.

You Can Send 'Em Away With a Smile



and that's the only way a person should leave your garage, because smiling men means pleased men—satisfied men—men who'll come back.

You can send 'em away with a smile any time, all the time, if you are equipped with

AMBU THE TROUBLE SHOOTER

This little device is your money maker, as well as your friend maker. With AMBU you can find the trouble in a few minutes and get your anxious motoring party " on their way" in a mighty short time.

With AMBU you satisfy because you KNOW instead of GUESS.

Write for information how one garage man's customers paid him **$300.00** within 10 days after he installed AMBU.

Ambu Service consists of:
- AMBU instrument,
- Wiring Diagrams covering over 1000 cars,
- Master Charts giving detailed information on every standard electric starting and lighting equipment used on automobiles from 1912 to 1919.

Full information upon request

AMERICAN BUREAU OF ENGINEERING, Inc.,
1032 SO. WABASH AVE. CHICAGO, ILL.

Big, Steady Profits in Ignition Coil Replacements

A Jefferson Coil For Every Requirement

GET *your full share* of battery ignition coil replacement business. Give every customer *instant service.* You don't need a big, varied, costly and ever-changing stock of coils.

Just a small stock of Jefferson Coils prepares you for every emergency. Jefferson Coils, consisting of only a few types, fit all makes and models of battery-equipped cars. Flexible caps, terminals and brackets make these coils adaptable for every requirement.

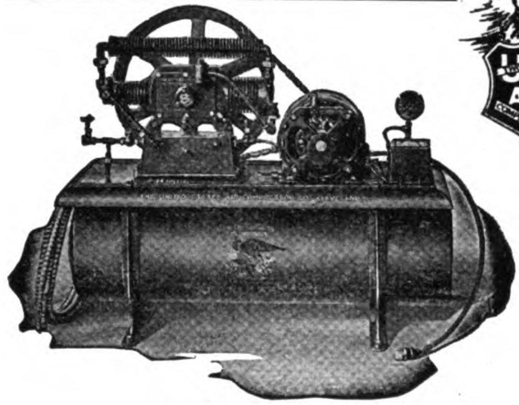
Jefferson Coils are of highest quality. Reliable—long-lasting. Even with battery at lowest ebb, they will unfailingly produce hot, intense spark for starting. Fully guaranteed.

Valuable Coil List Free

Write today for full facts and folder with handy, compact coil list that will aid in building up your coil sales. Sent free.

Jefferson Electric Mfg. Co.
429 So. Green St., Chicago

JEFFERSON Battery Ignition Coils



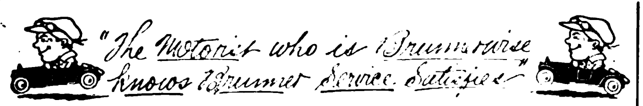
IF ITS AN AIR COMPRESSOR YOU'LL FIND IT IN THE U. S. LINE

THE United States line is complete, containing air compressors for every service up to 500 pounds pressure. Compressors are furnished in both Two Stage and Single Stage types and every unit is absolutely guaranteed.

The U. S. Two Stage De Luxe Automatic Air Unit illustrated above is a remarkable machine, perfectly adapted for a majority of garages, tire shops and service stations. It contains 14 improved features several of which are exclusive.

Be assured of satisfaction. Write today for the U. S. literature.

THE UNITED STATES AIR COMPRESSOR CO.
6538 Carnegie Ave. Cleveland, O.


"The Motorist who is Brunnerwise
knows Brunner Service Satisfies"

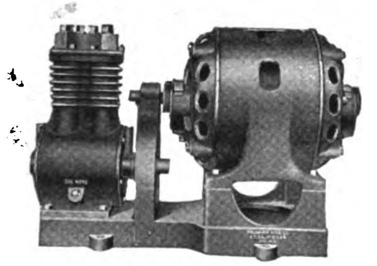
The Confidence of the Motoring Public Is the Garagemans Greatest Asset—

BRUNNER

Automatic Garage Air Compressors inspire confidence because they are absolutely reliable, and motorists know they are going to get service when they pull up in front of the garage displaying the Brunner sign—

BRUNNER AIR SERVICE
AIR
THE MOTORIST WHO IS BRUNNERWISE
KNOWS BRUNNER SERVICE SATISFIES

The bright red centre of the well-known Brunner sign is eagerly sought out along the highways from ocean to ocean by thousands of Brunnerwise motorists who know that a high-class, efficient compressed air supply is always available where the Brunner sign is displayed. The Brunner sign was the first air sign—an original Brunner idea.



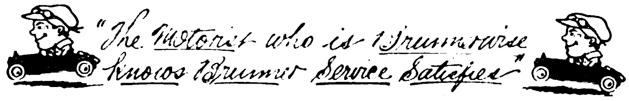
The Brunner is the pioneer of all garage air compressors—a Brunner Automatic would increase the efficiency of your air service and conserve labor for you, Mr. Garageman.

Write for catalogue No. 15 and name of the Brunner jobber covering your town.

Brunner Manufacturing Co.

Main Office & Plant:
UTICA, N. Y.

Western Branch:
Cincinnati, Ohio


"The Motorist who is Brunnerwise
knows Brunner Service Satisfies"

ONE GALLON
BLUE RIBBON
TRADE MARK
REGISTERED U.S. PAT. OFFICE
GREASELESS CREAM
AUTOMOBILE
BODY GLOSS
INDIANAPOLIS, IND.

KEEPS THE BODY OF YOUR CAR

Shining

LIKE A MIRROR

No Grease to Catch Dust
Does Not Coat the Finish
Best Furniture Polish Made
Use With Spray if Desired

International Metal Polish Co.
INDIANAPOLIS, INDIANA

TRADE OUTLET

Real Barg ins. Low Prices. Puritan Quali y.

All parts for many cars, many parts for all cars, tell us what you need.

EXTRA VALUES IN CASINGS.

These casings are factory seconds that will give excellent service. They are good values and will sell fast—better order early.

30x3 smooth tread	**$10.00**
33x4 non-skid	**21.70**
34x4 non-skid	**21.95**

PURITAN ELECTRICAL SUPPLIES.

6 volt Autolite Generators, model GG, brand new	**$12.50**
6 volt Ward-Leonard Starting Motors, brand new	**15.00**
6 volt Ward-Leonard Generators, brand new	**15.00**
Ward-Leonard Controllers, brand new	**8.00**
Connecticut G Lighting and Ignition Switches, new	**6 00**
Connecticut G. A. Coils, new	**7.50**
Cuno Starting Switches, new	**2.50**
Bosch DU4 Magnets, variable spark, rebuilt, guaranteed	**30.00**
6 volt 100 hour Exide Storage Batteries, new	**20.00**
6 volt 100 hour Century Storage Batteries, new	**20.00**

BRAND NEW BODIES.

Maxwell Touring Bodies (shop worn)	**$35.00**
Studebaker 1915, 5-passenger	**40.00**
Abbott Cloverleaf, complete with top and shield	**175.00**

WHEELS AND RIMS.

Wheels and rims for all cars	**$3.00 up**
Houk Wire Wheels, 34x4½ and 36x4½, per set of five	**75.00**

MISCELLANEOUS.

4 and 6 cyl. motors, rebuilt; send for specification sheet	**$49.50 up**
Complete electric lighting outfits for Fords	**10.00**
Gas Tanks, all shapes and sizes	**1.00 up**
Battery Boxes, all sizes	**1 00 up**
Electric Head Lamps, per pair	**5.00**

Write for a copy of our free bargain bulletin.

PURITAN MACHINE CO.,
415 Lafayette St.
29 Puritan Bldg., Detroit, Mich.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

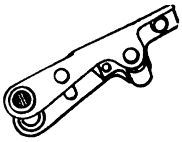
CORP BROS. **40 Mathewson St., Providence, R. I.**
Phone Union 4179-R.

MANUFACTURERS AND GARAGES.

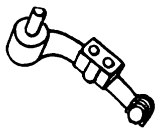
With our facilities we are especially equipped to handle large and small **Welding Jobs.**

Work done when you want it.
Correspondence invited.

WILKINS & HOVEY CO.,
35 Albany St., Cambridge, Mass.

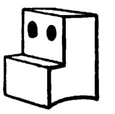


Superior Parts and Brushes

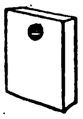


FOR ALL

Ignition and Starting Lighting Systems



Used for Years by the Best Repair Shops Everywhere.



"They Last Longer but Cost Less"

Write for Catalogue

Specialty Manufacturing Co.

637 Massachusetts Ave., Arlington, Mass.

Send it to Detroit

MAGNETOS.

Bosch DU-4 Variable spark	$30.00
Bosch DU-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cyl. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	10.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hours service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange
192 Grand River Ave. Detroit, Mich.

TRADE MARK
TREADO
PATENTED MAY 9, 1916 REG. U.S. PAT. OFF.

Save Money On Your Tires

Here is a composition that not only makes an old, worn tire new, but actually prolongs the wear of your tire.

TREADO

adds thousands of miles to tires, it rebuilds worn treads, mends large and small cuts and can be applied by anyone. TREADO is a prepared rubber. Requires no cement, heat, patches or rubber.

Full directions on every can. Send today for a can at 50c.

TREADO Manufacturing Co.

42 Dwight St., Springfield, Mass.

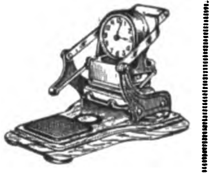
Auto Parts

SAVE AT LEAST 50%

We have in stock at all times parts for Stearns, Stevens-Duryea, Flanders, Maxwells, E. M. F., Buicks, Mitchells, Speedwells, Herreshoffs, Hudsons, Elmores, Pope Hartfords and Franklin cars.

Write, Wire or Phone.

BOSTON AUTO PARTS CO.,
1240 Dorchester Avenue, Boston, Mass.



Hoggson Universal Time Registers, Recorders and Stamps record everything coming to or leaving the place. Cars, employees, job work, cost of manufacture, sales made, etc. Especially designed for garages, machine, printing and all shops having limited number of employees. **S. H. Hoggson & Co., 27 Thames St., New York City.**

AUTO SALVAGE CO., INC.

The World's Largest New and Used Parts House. St. Louis, 2823-5 Locust St.; Kansas City, 1701 Main St.; Cincinnati, 314 E. Third St. Write to nearest office.

Parts for any Automobile at a saving of 50% to 80%. Our three great plants cover every state in the Union, and we are therefore in better position to fill your orders.

Engines—40 to 60 of them on the floor now and we will make prices on them that will move them. Several unit power plants.

Transmissions — Planetary, two-speed, three-speed, four-speed, center control, with and without multiple disc clutch; all at surprisingly low prices.

Rear Axles—From the Timken to the Ford, many with transmission on them, at prices from $10 to $75.

Our Guarantee: You Must Be Satisfied. Any article purchased from us which does not in your opinion, give satisfaction or fit, can be returned to us at our expense and your money will be cheerfully refunded.

"NORMA"

PRECISION BALL BEARINGS

(PATENTED)

Day-in-and-day-out dependability never counted for so much—never was worth so much—never was so sought after—as now. To be ready at all times with the full measure of service—to be capable, if need be, of the super-effort that emergency may demand—can any small price-difference be considered for a moment, beside this?

"NORMA" Precision Bearings, in the high-grade ignition apparatus and lighting generators that are rendering maximum service to-day, are potent factors in the consistent performance which makes these equipments to be preferred where dependability is sought.

Be *Sure*—See That Your Electrical Apparatus Is "NORMA" Equipped.

THE NORMA COMPANY OF AMERICA

1790 BROADWAY NEW YORK

Ball, Roller, Thrust, Combination Bearings

THE ACCESSORY AND GARAGE JOURNAL

INDEX TO ADVERTISERS

Page

Adamson Mfg. Co. 53
Advance Auto Accessories Corp 12
American Bureau of Engineering, Inc 59
Auglaize Motor Car Co 57
Automobile Devices Co 52
Auto Salvage Co., Inc 61

Bearings Service Co 4-5
B. F. S. Mfg. Co 58
Bilodeau Ball Bearings Works 64
Boston Auto Parts Co 61
Bowser & Co., Inc., S. F 63
Brunner Mfg. Co 60
Bunting Brass & Bronze Co 52

Carborundum Co 10
Chase Co., L. C 53
Colorado Tire and Leather Co 3
Continental Auto Parts Co 56
Corning Glass Works 2
Corps Brothers 61
Curtis Pneumatic Machinery Co .... Cover

Detroit Magneto Exchange 61
Dixon Crucible Co., Jos 64
Dyer Co., G. H 1

Faw, Inc., J. H 53
Fisk Rubber Co 49
Fitzgerald Mfg. Co 8

Greenfield Tap and Die Corp 55

Harvey Spring and Forging Co 9
Higgins Spring and Axle Co 56
Hoggson, S. H. & Co 61
Hubbard, M. K., Spring Co 58

Imperial Brass Mfg. Co. 58
International Metal Polish Co 60

INDEX TO ADVERTISERS

(Continued)

Page

Jefferson Electric Mfg. Co.........................59
Jenkins Vulcan Spring Co......................... 7

King-Bull Mfg. Co..................................56

Lawson, F. H., Co..................................58

Mabey's Electric and Mfg. Co.....................52
Martin Mfg. Co......................................52
Metal Hose and Tubing Co.........................57
Mueller & Co., R. S.................................53

National Bearings Service Co......................64
New Departure Mfg. Co............................56
New Era Spring and Specialty Co..................53
Norma Co. of America..............................62

Piston Ring Co.......................................56
Puritan Machine Co..................................61
Puritan Machine Works..............................56

Ross-Gould List and Letter Co.....................52

Scaife, Wm. B. & Sons Co.........................56
Schrader's Son, Inc., A.............................57
Shaler Co., C. A.....................................58
Shurnuff Mfg. Co...................................Cover
Specialty Mfg. Co....................................61
Stenman Electric Valve Grinder Co., Inc...........58

United Engine and Mfg. Co.........................58
United States Air Compressor Co...................59
United Motors Service, Inc......................... 6

Vanderpool Co..55

Walden-Worcester, Inc............................Cover
Webber Mfg. Co......................................64
Weston Electrical Instrument Co..................57
Wilkins & Hovey Co.................................61
Williams Foundry and Machine Co..................52

BOWSER
ESTABLISHED 1885

OIL TANKS, PUMPS AND STORAGE SYSTEMS

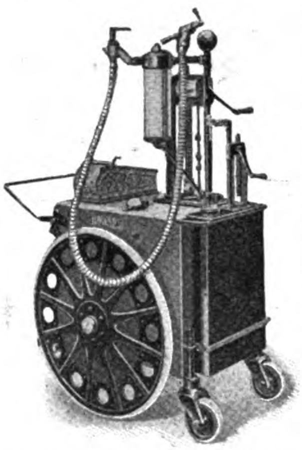


Fig. 121 Gasoline Wheel Tank

Figure 121 Gasoline Wheel Tank

Move it wherever you want it. Capacity, 50 gallons. Pumps pint, quart, half-gallon or gallon Locks. Measures Gasoline directly into automobiles. Can be fitted with Meter, Filter, Register and Slip Box for recording sales; Lubricating Oil Compartment, holding five gallons, pumping pint, half-pint or quarter-pint, as shown in illustration

Figure 154 Lubricating Oil Wheel Tank.

Move it wherever you want it. Capacity 65 gallons. Made in one or two compartments. Pumps and measures half-pint, pint or quart. Can be fitted with lock.

An efficient Lubricating Oil Salesman.

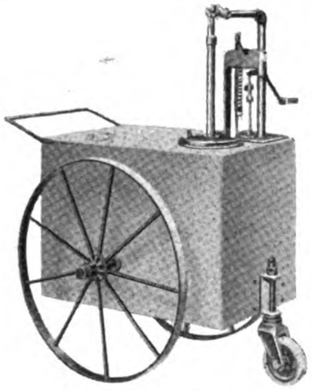


Fig. 154 Lubricating Oil Wheel Tank

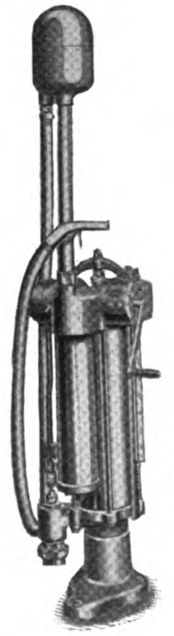


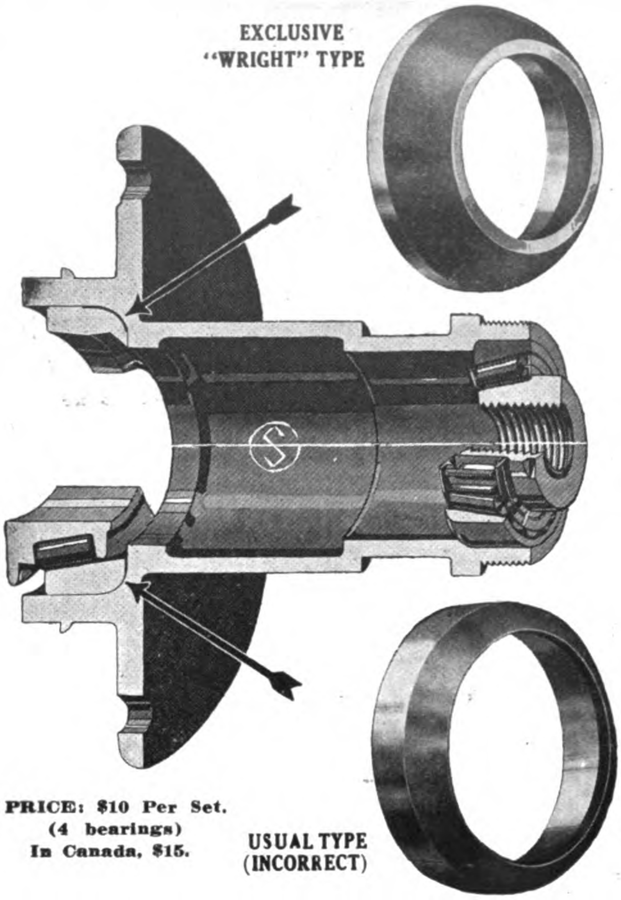
Figure 101 "Red Chief" Five-gallon indoor Gasoline Pump

Quickest and Fastest Indoor Pump made. Pumps quart, half-gallon, one, two, three, four or five gallons. Locks. Records, Filters and Measures Gasoline directly into automobiles.

For use with Underground Tanks.

Write for literature.

S. F. Bowser & Company, Inc.
FORT WAYNE, Indiana, U. S. A.



PRICE: $10 Per Set.
(4 bearings)
In Canada, $15.

The Only Scientifically Correct Roller Bearings for Fords

After continued tests in actual service a common fault in all taper roller bearings for Fords was discovered. The inner ring, being subjected to a continuous twisting strain, has a tendency to move out of position and thus ruin the bearing. Inability to provide a proper seat for the bearing is the primary cause of this trouble. With this fault in mind the Wright Bearing was improved by the addition of a second surface (see cut). This second surface being at right angles to the other holds the bearing firmly in place and makes it absolutely impossible to move.

A glance at the cuts will show the firm manner in which the Wright ring is seated in the hub and a comparison of the Wright ring (at top) with a general type of ring (at bottom) will show the radical difference in construction.

The fundamentally correct design of the Wright Bearing makes this feature (on which patents are pending) possible to the Wright type alone. No other bearing can have it without changing the entire design of the bearing itself.

Thus the Wright Bearing, which embodies the correct fundamental principles of bearing design, has added another exclusive feature to an already proven superior product.

Ask your dealer or jobber to show them to you

NATIONAL BEARINGS SERVICE CO.
WRIGHT TAPER ROLLER BEARINGS
Replacements for all Standard types of Bearings

1412 Girard Ave., Philadelphia. 18 West 62nd St., New York.

Wright Bearings are an Essential to Truck Units Using Fords or Chevrolets.

DIXON'S
GRAPHITE GREASE
No. 677
TRANSMISSIONS and DIFFERENTIALS

It's Easy To See

why Dixon's are the best lubricants. When bearing surfaces are coated with

DIXON'S
GRAPHITE
Automobile
LUBRICANTS

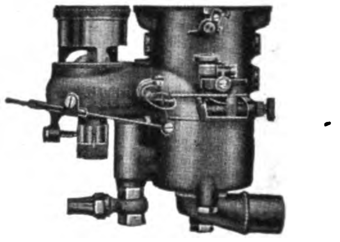
metal-to-metal contact is prevented by the superior, especially selected flake graphite grease which forms a film that outlasts any other kind of lubricant.

Write for Dixon's Dealer's Deal No. 49-C.

Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

Established 1827



YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

More Mileage—More Power—More Speed

Get him to try it for 15 days. Satisfaction guaranteed.

WEBBER MANUFACTURING COMPANY

Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway

Guaranteed Bearings
We Exchange Rebuilt Bearings for old or worn ones
BILODEAU BALL BEARING WORKS

ECONOMY *Plus* EFFICIENCY

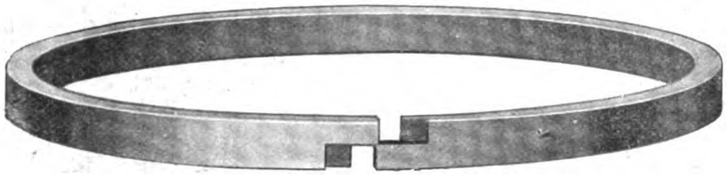
These words mean great strength toward winning the war. They form our policy—and by the standard of that policy we are continually schooling garage men and repair men to avail themselves of our exceptional service of Rebuilding Worn Bearings.

Bilodeau Rebuilds All Makes of Worn Bearings, to Run as True as When New.

Write at once for catalog, listing types, sizes and prices of standard bearings. Trade discounts confidential.

BILODEAU BALL BEARING WORKS
66 Stanhope Street. BOSTON, MASS.

IF YOU ARE A FORDITE



The Taylor Leakage-Proof Ring

Will Absolutely Cure Your Motor of Carbon Troubles and Loss of Compression

INCREASE

GAS MILEAGE, OIL MILEAGE, POWER

The Interlocking, Underlapping Joint keeps the gases **UP** and the oil **DOWN.**

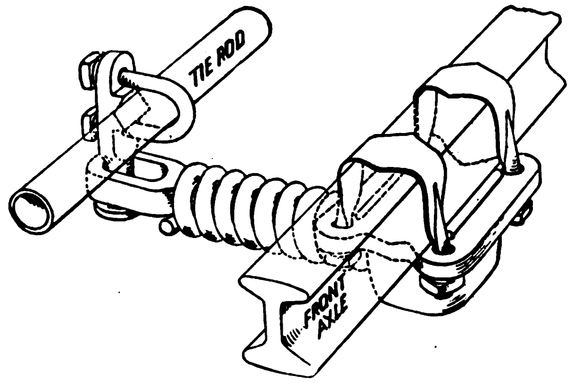
50c EACH

Made in 3¼x¼" size only

Strong, Durable, Eccentric, One-Piece.
No points to break or catch carbon.

Prevents Loss of Control:

1. **Making quick turns.**
2. **Striking obstacles.**
3. **Broken steering gear.**
4. **Front wheels skidding.**



Adds 50% To the Pleasure of Driving a Ford

THE D. & O. ANTI-WOBBLER

HOLDS THE STEERING WHEEL STEADY ON THE ROUGHEST ROAD.

Saves Tires! Saves Your Arms! Saves Your Nerves!

WE RE-GRIND AND FILL-IN SCORED CYLINDERS

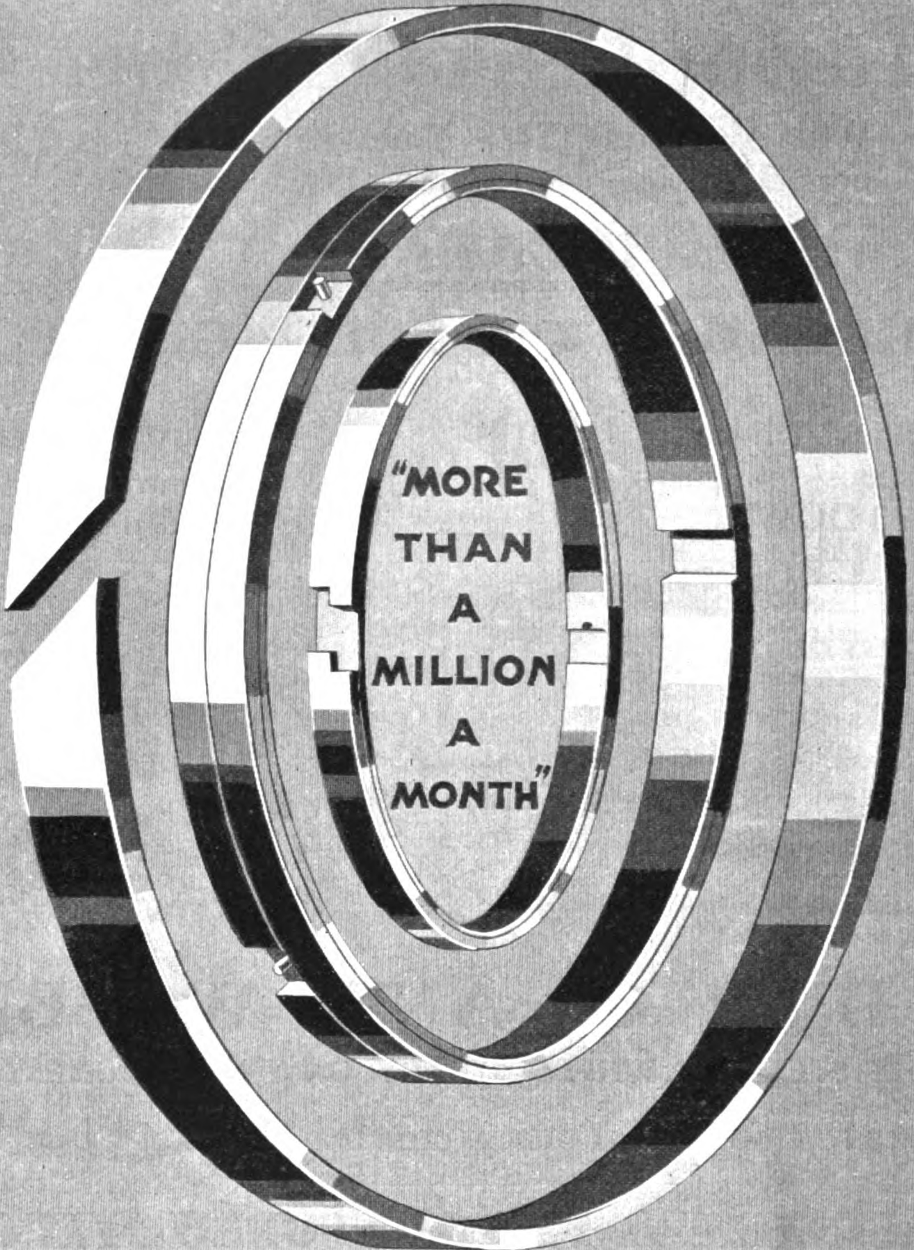
TRUCK TRACTOR PLEASURE CAR MARINE

EXCELLENT WORK BY SKILLED OPERATORS

New Pistons Rings Bushings Pins

THE G. H. DYER CO., Cambridge, Mass.

QUALITY STA-TITE DUPLEX PISTON RINGS


"MORE THAN A MILLION A MONTH"

SEND FOR "TWELVE REASONS" BOOKLET

THE Piston RING COMPANY
SPECIALISTS IN PISTON RINGS

102 SANFORD ST. MUSKEGON, MICH.

CHARLES C. GATES

-serving your customers

——if a car-owner enters the store across the street for a fan-belt—and cannot get it—and it is 30 miles to the nearest agency which handles the car he uses—and he crosses the street to your store—and finds that you can fit his car—

——you have made a friend—earned 30 miles worth of good-will, and earned a neat profit for yourself.

——the "standardized" fan-belt enables you to give this service—whatever the car—for 8 or 9 standardized sizes will fit every car in your territory—you double your fan-belt business.

——a Gates Vulco-Cord Belt will fit as many as 12 different cars and models—no dead stock—every belt labeled with the names of the cars it fits.

—write for our free booklet—talk "standardization" with your jobber.

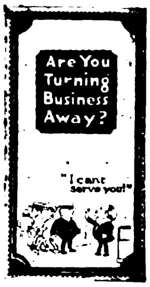
——emphatically, the "standardized" Gates Vulco-Cord Belt is the fan belt to tie to for 1919, for if your fan-belt business has not doubled this year you are not getting your shares.

Gates Rubber Company, Sundries Department

Formerly the Colorado Tire and Leather Company

" *World's Largest Makers of Fan-Belts* "

Write for
this free
Booklet



DENVER
1918

PRODUCTS OF CONSTANT PERFORMANCE
REMY
THE DAYTON ENGINEERING LABORATORIES CO.
STARTING LIGHTING IGNITION
DELCO
DAYTON, OHIO
KLAXON
MOTORS SERVICE
TRADE MARK

"For Service:—The vast resources and facilities of the Remy, Delco and Klaxon organizations are merged into one, i. e.—The United Motors Service Inc."

SERVICE

—on REMY
—on DELCO
—on KLAXON

United Motors Service branches are in the north, east, south and west. At every branch you'll find complete equipment of Remy, Delco and Klaxon parts;—at every branch you'll find *service*, quick and sure.

United Motors Service Inc. branches in the following cities at present rendering service on Remy only:

Denver
Minneapolis
Cleveland
Boston
Atlanta

15 cities in which there are United Motors Service Inc. service stations for Remy

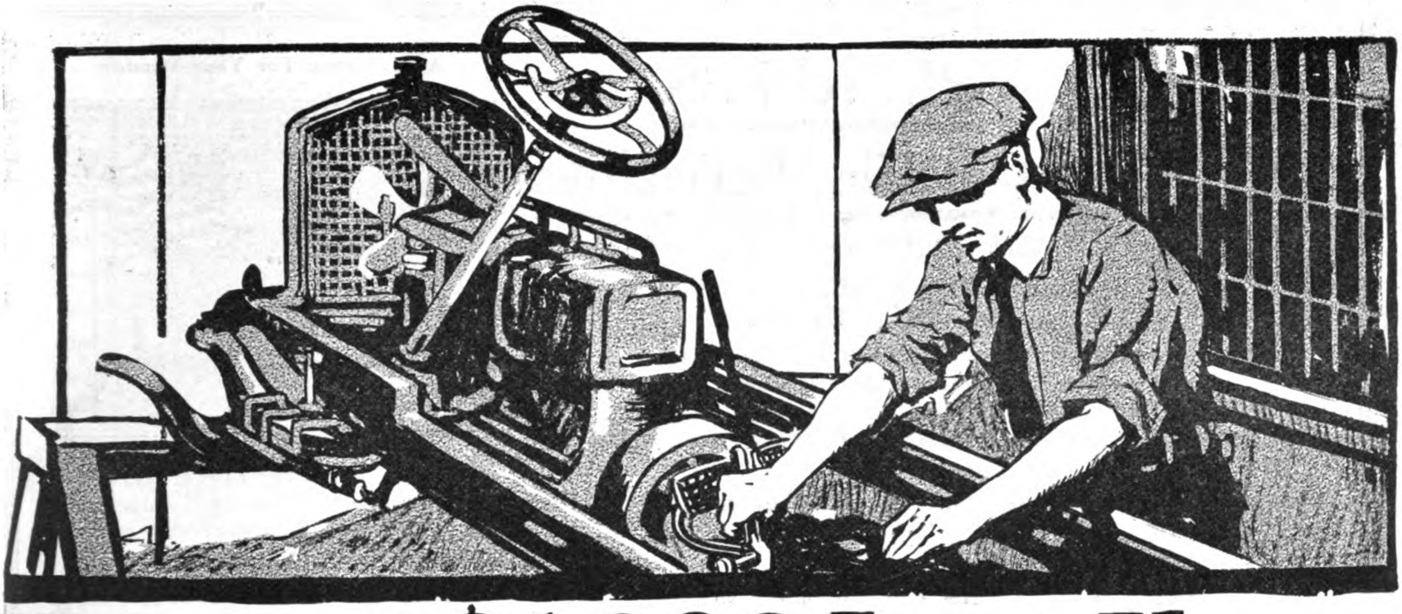
United Motors Service Inc. branches in the following cities giving service on Delco, Klaxon and Remy:

Kansas City
Chicago
Detroit
Los Angeles
San Francisco
New York

66 cities in which there are United Motors Service Inc. service stations for Klaxon

General Offices:
Detroit, Mich.

UNITED MOTORS SERVICE
INCORPORATED



Earned $6000 Last Year-Rebuilding Autos!

"I always had a craze for tinkering with motor cars—yet I never thought that I could turn this knack into a good income. Then I opened my eyes to what hundreds of other men were doing. They were buying up old cars and rebuilding them. They were opening up public garages and running repair shops. I made inquiries. I found out how my friends did these things. I followed their example. Last year I earned $6000. This year I expect to make more, because automobile owners are making their old cars last them through the period of the war, and this means a lot more work and profit for men in my line of business."

You Can Qualify

You can earn as much money as this man. You can turn your love for motor cars into cash. If you are already an automobile mechanic, repair man or chauffeur, you can climb far higher.

Right now is the time to act. The field of automobile and commercial car manufacturing is growing tremendously. Its future is unlimited.

You can prepare yourself speedily to become a skilled automobile mechanic. You can equip yourself to open your garage. A simple spare time reading course in Automobile Engineering opens the way to success **to you—now!**

Automobile Engineering

This five-volume library of Automobile Engineering will prepare you for a worth-while position in the fascinating field of automobile production.

Fifteen great automobile engineers and specialists, with the co-operation of scores of other experts in their field, have compiled this great reading course. There are 2400 pages and 2000 illustrations. The books are new and up to the minute in every principle and method. They are carefully cross-indexed so that you can find a given subject as easily as you find a word in the dictionary.

Shipped Free

We do not ask you to take our word for the merit of these books. We simply ask you to find out for yourself. You can do this without risk or expense or obligation. All we ask is that you fill out and mail the coupon.

We will ship the books to you express collect for 7 days' free examination in your home or shop. Use the books as if they belong to you. Note how they explain all of the new automobile developments—ignition, starting, lighting, welding, etc. If the books do not come up to your expectations, send them back to us at our expense. If you are pleased with them; if you see that they will help you to achieve your goal, send us just $2.00 within seven days and then $2.00 a month until the special introductory price of $17.80 has been paid.

Special Offer

Your purchase of these books brings you a Consulting Membership in the American Technical Society, which while valued at $12.00, may prove to be worth hundreds of dollars to you. It entitles you to special information on subjects dealing with automobile construction and repair, or garage or shop management for the period of a year. You may ask as many questions as you wish.

Some of the Fascinating Subjects

- **Explosion Motors**
- **Welding**
- **Motor Construction and Repair**
- **Carburetors and Settings**
- **Valves**
- **Cooling**
- **Lubrication**
- **Fly Wheels**
- **Clutch**
- **Transmission**
- **Final Drive**
- **Steering**
- **Frames**
- **Tires**
- **Vulcanizing**
- **Ignition**
- **Starting and Lighting Systems**
- **Wiring Diagrams**
- **Shop Kinks**
- **Commercial Garage Design and Equipment**
- **Electrics**
- **Storage Batteries—Care and Repair**
- **Motorcycles**
- **Commercial Trucks**

Send No Money

Mail free inspection coupon. Just your name and address on the coupon brings the 5 valuable volumes to you express charges collect for 7 days' free trial. We cannot guarantee that this little price will hold. Your opportunity is now. Mail the coupon at once, while this offer is open to you.

THE AMERICAN TECHNICAL SOCIETY
Dept. A-7767, CHICAGO, ILL.

THE AMERICAN TECHNICAL SOCIETY
Dept. A-7767, CHICAGO, ILL.

Please send me the 5-volume set "Automobile Engineering" for 7 days' free examination, express charges collect. If I decide to buy, I will send $2.00 within 7 days and the balance at $2.00 a month until $17.80 has been paid. Then you send me a receipt showing that the $25 set of books and the $12.00 consulting membership are mine and fully paid for. If I think that I can get along without the books after the 7 days' trial I will return them at your expense.

Name ....

Address ....

Reference ....

Help Win the War

BY STEADY WORK
FULL TIME
SIX DAYS A WEEK

U. S. Dept. of Labor
W. B. WILSON
Sec'y of Labor

Peerless Automobile Specialties
Make Old Cars Look Like New
Peerless
Cushion Dressing
The Columbus Varnish Co.

PEERLESS

Automobile Specialties

Make Old Cars Look Like New

GOODS THAT SELL—Display Material for Dealers.

Quality goods sold for eight years as the finest possible goods to make for use in their respective places.

Recognized as the Finest Possible to Obtain

FOR USE BY:

Owners, Chauffeurs, Garagemen and Automobile Painters

Eight years ago we were told that no one could make a dressing to water-proof leaking tops without ruining it. **We have done it** and have sold hundreds of thousands of cans. The Top Makers and Manufacturers recognize the quality of Peerless Mohair Top Dressing. The Automobile Painters recognize this product and the full line. Each product is made from the start RIGHT.

Put up in attractive friction top lithographed cans.
Attractive display material accompanies each order.
Dealers order stock today from your jobber.

A Suggestion For Your Window

MAKE OLD CARS LOOK LIKE NEW

MOHAIR TOP DRESSING

A waterproof dressing which dyes tops with one application.

Leather Top Dressing

Renews and softens rubber, leather and pantasote tops.

LINING DYE

Dyes all dirty linings a black uniform color.

CUSHION DRESSING

Brightens and renews the finish of leather seats and cushions.

LAMP ENAMEL

Makes a fine finish for lamps and similar parts with one coat. Gloss and dull.

EXTRA FINE BLACK JAPAN

A rich gloss air drying enamel for touch-up and all around use.

CARBON REMOVER

A liquid remover which effectively removes the deposits of carbon from a motor.

CYLINDER ENAMELS

Heavy bodied heat, grease and gasoline resisting products. Black and gray.

FENDER JAPAN Jet black

A rich black air drying enamel. Gives a finish like a baked job.

RIM PAINT

Protects rims from rusting. Allows rims to be removed with ease.

Battery Box Black

An acid-proof coating that keeps acid from ruining wood and metal parts.

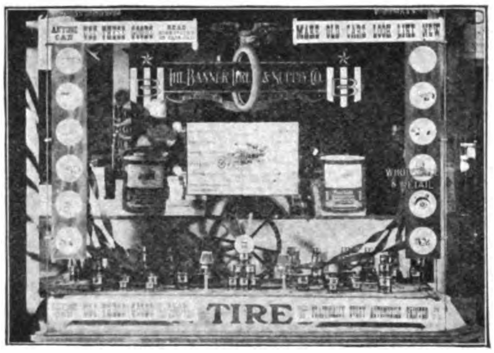
Color Finishings

EIGHT COLORS

Red	**Black**
Yellow	**Blue**
Straw Color	**White**
Brewster Green	**Gray**

Air Dries Overnight.

These goods enable an Owner, Chauffeur or Garage man to paint the body, wheels and chassis of his car any color or any combination of colors desired. These goods are high grade solid covering colors made with a Finishing Varnish so that it is not necessary to Varnish over them to stand wear. One coat is sufficient over any similar shade of color. Over extreme contrasts two coats are recommended for the light colors.


MAKE OLD CARS LOOK LIKE NEW
TIRE

Your Window Should Look Like This

BODY POLISH

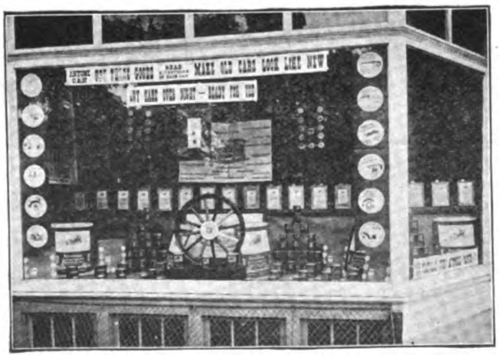
A fine product for dull varnished surfaces.

GASKET SHELLAC

A heavy bodied orange colored pure alcohol product. Very elastic.

ANTI-FREEZE

Used as a protector against frozen radiators for winter driving.


MAKE OLD CARS LOOK LIKE NEW

Why Not Your Window?

TIRE PAINTS

A waterproof coating. Keeps tires looking bright and new. White, gray and black.

—— **Made only by** ——

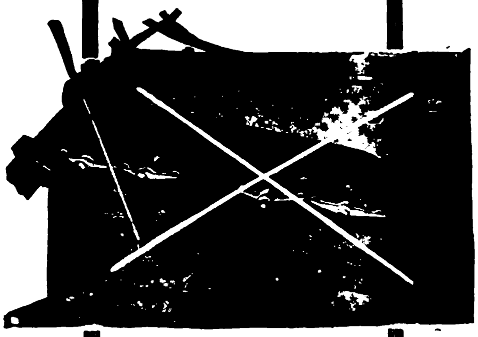
The Columbus Varnish Co.

Makers **Columbus, Ohio, U. S. A.**

Peerless Automobile Specialties
Make Old Cars Look Like New
Peerless
Cylinder Enamel, Gray
The Columbus Varnish Co.

Anco Manifold

Dealers! *Here's the Biggest Seller in the Manifold Field!*



The Old Wasteful Way

This photograph shows the Ford engine equipped with the regular Ford manifolds designed years ago, when gasoline was cheap in price and snappy in performance.

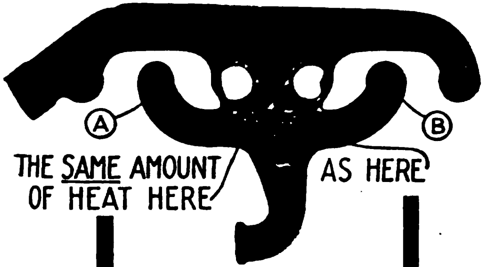
Exhaust and intake manifolds are widely separated. There is no provision for applying heat to the intake manifold, as is done in the new government aeroplane and truck motors and in the engines of latest models of many good cars, to better vaporize present-day, low-grade, high-priced gasoline.

The Ford engine needs a live, dry gas—a quick-firing, clean-burning, "high-tension" gas that explodes like a torpedo—not like a wet fire-cracker.

The Modern Method

This photograph shows how the Ford engine looks equipped with the modern ANCO "Evenheat" Manifold—a finely finished, combined intake and exhaust manifold cast in one rigid piece and put on easily with a wrench only, in twenty minutes, in the exact place of the regular Ford manifolds. Nothing to adjust. Nothing to wear out. Nothing to watch. The ANCO is trouble-proof and is guaranteed to outlast the car.

Winter **and summer**—on the cheapest gasoline—the "even heat" of the ANCO loads each cylinder for every shot with a uniform, clean-burning "high-tension" gas. The ANCO transform every particle of fuel into a perfect explosive. The ANCO puts life in lazy gasoline—gives a guaranteed increase of 30% to 50% in mileage.

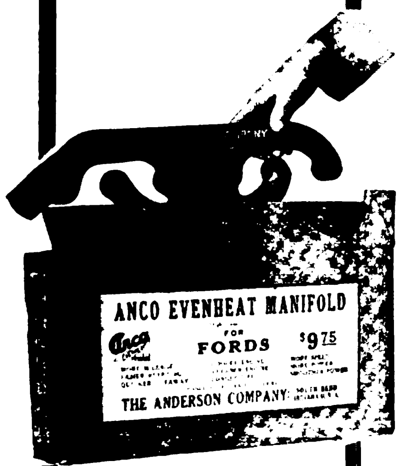


The Principle is Right

In the ANCO, gasoline spray swept upward from the regular Ford carburetor, strikes the live, hot wall shown, where it is transformed instantly into high-tension gas. Here it changes direction—one-half of the gas passing to the right into the two front cylinders (at B) and one-half passing to the left into the two rear cylinders (at A).

This hot dividing wall called the "hot spot", is located centrally, squarely above the point where the fuel changes its course abruptly and where all the heavier unvaporized particles must shatter themselves against its hot surface.

Each half of the incoming gasoline vapor gets the same amount of heat and each cylinder gets the same high quality of gas, a vital feature not licensed in any other manifold for Fords. This evenly balanced construction eliminates "hot knocking," excess heating of engine, loss of power, etc., caused by the unbalanced construction and irregular action of other special manifolds for Ford cars.

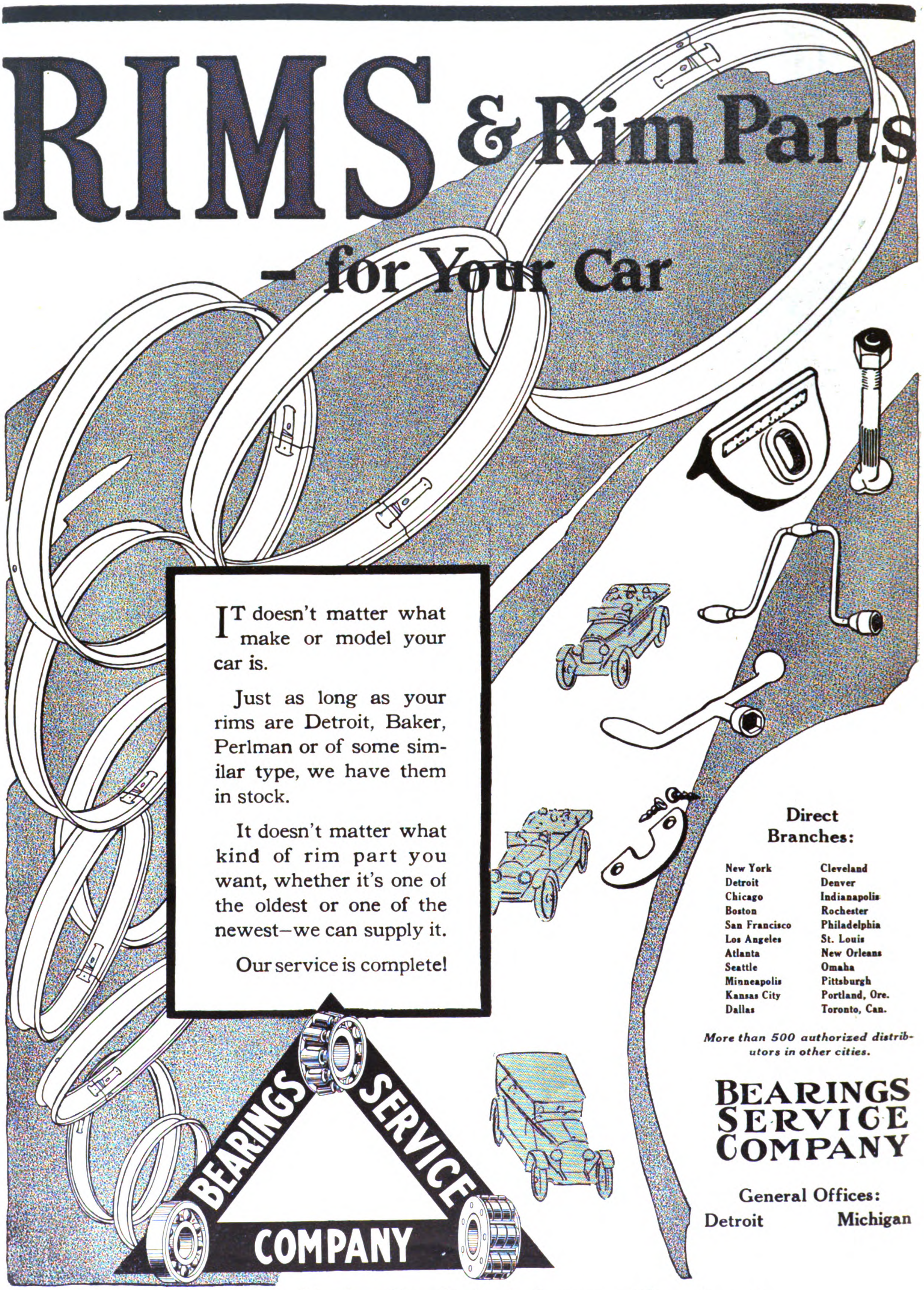


A Sure-fire Seller

The ANCO is a fine piece of merchandise put up in invididual cartons with all gaskets, instructions, etc., inside. And besides it is backed by a merchandising and advertising campaign stronger than any other ever made in the accessory field. The manifold creates enough enthusiasm and the selling plan is so positive in its action that we guarantee to produce sales for you to a certain substantial percentage of all your Ford owners within a limited time. Get the ANCO proposition. ANCO performance for the user and profit for the dealer is guaranteed. There's waste in waiting. Write right now for descriptive literature.

**Positively
will not
overheat
in hot weather.
Let us tell
you why.**

The Anderson Co.,
South Bend, Indiana
200 St. Joseph Street
STOCKED BY LEADING JOBBERS



RIMS & Rim Parts

– for Your Car

IT doesn't matter what make or model your car is.

Just as long as your rims are Detroit, Baker, Perlman or of some similar type, we have them in stock.

It doesn't matter what kind of rim part you want, whether it's one of the oldest or one of the newest—we can supply it.

Our service is complete!

Direct Branches:

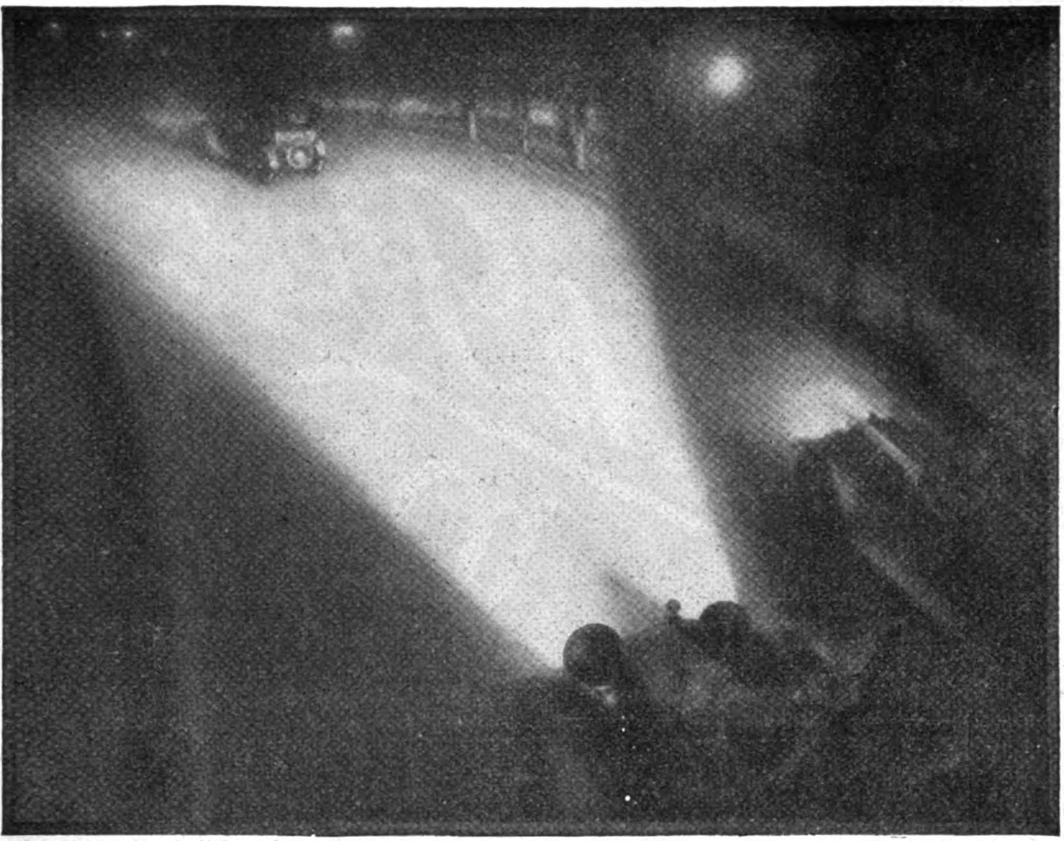
New York	Cleveland
Detroit	Denver
Chicago	Indianapolis
Boston	Rochester
San Francisco	Philadelphia
Los Angeles	St. Louis
Atlanta	New Orleans
Seattle	Omaha
Minneapolis	Pittsburgh
Kansas City	Portland, Ore.
Dallas	Toronto, Can.

More than 500 authorized distributors in other cities.

BEARINGS SERVICE COMPANY

General Offices:
Detroit Michigan

Buy Liberty Bonds



Conaphores cause the light to pierce fog or dust without "back glare"

Photograph by L. A. Hiller

Why motorists need Noviol headlights

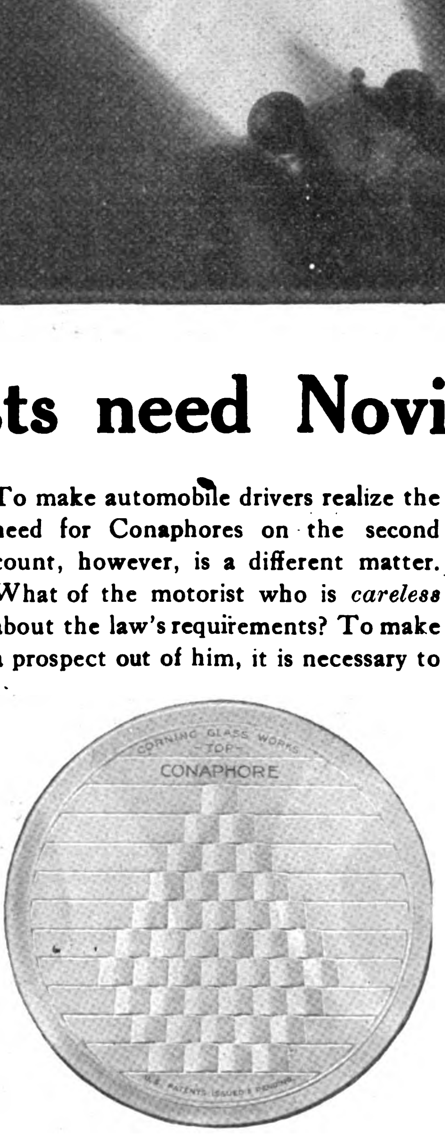
THERE are two main reasons why every motorist in your territory should equip his car with Noviol Conaphores.

First—Noviol Conaphores offer unique advantages, particularly necessary for fall driving. They eliminate the dangerous "back-glare" which blurs the driver's vision on foggy or dusty nights. They provide a light that is easy on the eye and easy for the eye to follow. Their Noviol tint flashes a sure "signal of safety" to oncoming motorists and pedestrians.

Second—They comply with the headlight laws of every state and community, by deflecting the glare rays, and distributing *all* of the light along the road for 500 feet and more.

To make motorists realize on the first count that they ought to have Conaphores, Conaphore advertising in national periodicals is driving these advantages home—*converting motorists into prospects for you.*

To make automobile drivers realize the need for Conaphores on the second count, however, is a different matter. What of the motorist who is *careless* about the law's requirements? To make a prospect out of him, it is necessary to show him that the headlight laws mean business. In fairness to other motorists who have adopted no-glare devices, and in fairness to pedestrians, the headlight laws should be enforced.



Smooth front surface. Easily cleaned. Does not clog with dust or mud

The Conaphore dealer who gets behind the movement to enforce the headlight laws, *who gets his automobile club to back their enforcement*, is stimulating an increased demand for Conaphores—and at the same time he is doing his customers and his community a real service.

Retail Price List (per pair)	Noviol Glass	Clear Glass
5 to 6⅞ inches incl.	$2.40	$1.60
7 to 8½ inches incl.	3.50	2.50
8⅝ to 10 inches incl.	4.50	3.00
10⅛ to 11½ inches incl.	6.00	4.00

Prices 25 cents more per pair west of Rocky Mountains. Sizes vary by steps of ⅛-inch above 6½-inch size

CONAPHORE SALES DIVISION
EDWARD A. CASSIDY CO., MGRS.
Madison Ave. and 40th Street, New York City

NO GLARE
RANGE 500 FT.

CONAPHORE

PIERCES FOG
AND DUST

CORNING GLASS WORKS—WORLD'S LARGEST MANUFACTURERS OF TECHNICAL GLASS

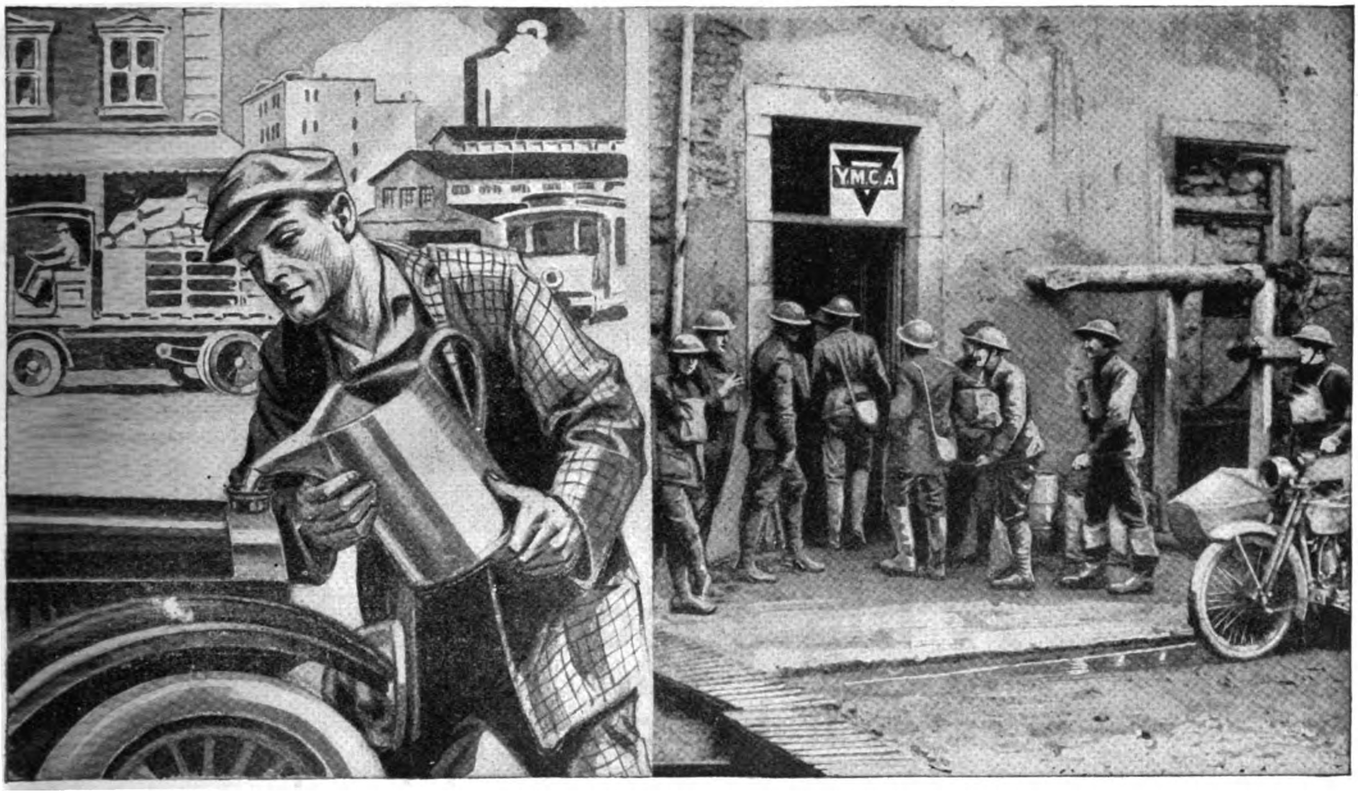
A Stock Record

We Can Ship
From Stock

Cylinder Head Gaskets
for
87
Different
Car Models

Can We Serve You

The FITZGERALD MFG. Co.
TORRINGTON, CONN.



You may want this man here — BUT — We need him "over there"

You Can Help Us Get Him

You might think it something of a sacrifice to deliberately talk with one of your best truck drivers and tactfully urge him to go to France to drive for the Y.M.C.A.—and it would be a sacrifice. But it wouldn't be much compared to that of the army boys who have to depend on Y.M.C.A. truck drivers for what little they can get of home comforts—would it?

The Y. M. C. A. in France Needs 75 Truck Drivers and 25 Automobile Mechanics

every month. And you can help us get them.

We can take only men who are over 37 years old and are not in Class 1 of the draft. The men we want are hard to get at directly.

Will you call the drivers and mechanics in your employ—or whom you know—into a meeting—explain the situation to them—the great need for their service—the great and honorable service they can render—and then put us in touch with the men who may be willing to undertake this great service?

The Y. M. C. A. is doing a great big work in France—it is helping our fighting men to keep in fighting trim.

One of its greatest needs is adequate transport facilities. Y. M. C. A. service for nearly two million men requires a *lot* of transportation work.

We have to move our goods and keep them moving—from ships to warehouses, to canteens, and to points behind—*and on*—the fighting lines.

We have the goods and the trucks. We need the *men* to man those trucks and keep them going.

You business men—employers—executives of industrial works—can do more than any one else to get those men for us.

Will you do it?

Fill in the Coupon— Get full data

And then use your powerful influence to help us get these men. Next to going yourself its one of the finest and most helpful pieces of war service you can render.

Ed M. Willis,
Y. M. C. A., 347 Madison Ave., New York.

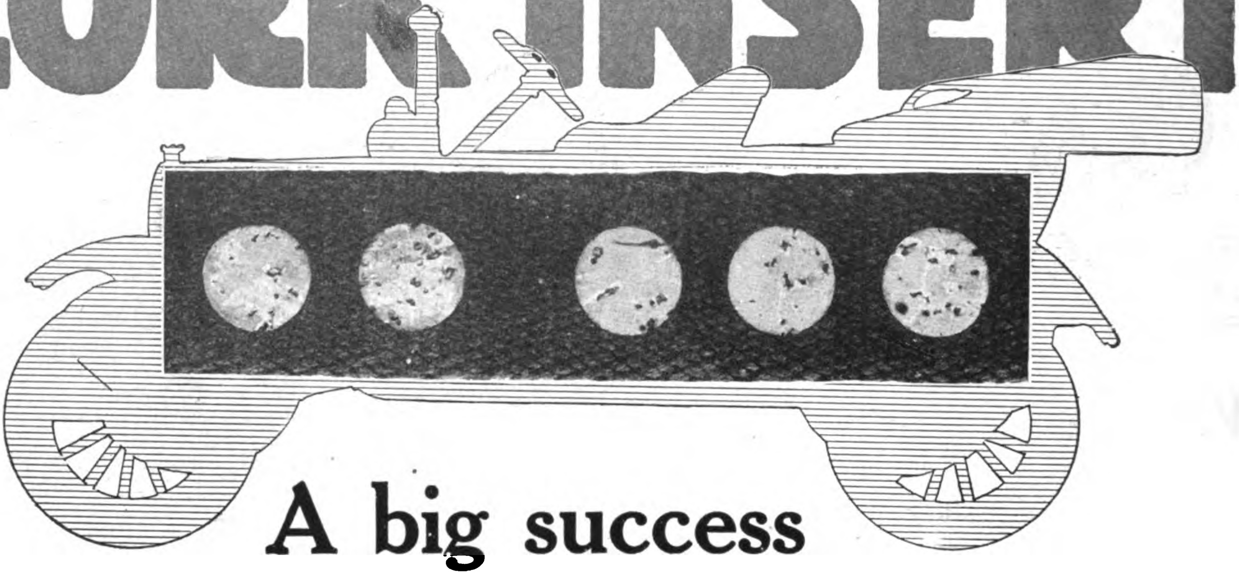
It may be possible for me to get recruits for Y.M.C.A. truck service in France. Please send me full information regarding that service.

Signature..

Street and No......................................

Town and State.....................................

CORK INSERT



A big success

—because it has made good on hundreds of thousands of Fords

Why has Cork Insert made good in such a big way? What makes it work so smoothly? Simply this: The cork buttons provide *improved* friction. The powerful high-grade fabric carries the load.

It isn't the cork—It isn't the fabric
It's the COMBINATION

in the patented Cork Insert way—that has made Cork Insert the big success that it is.

Cork alone hasn't the strength for transmission lining usage. Fabric alone lacks frictional qualities. It glazes down too quickly, causing grabbing, slipping, chattering.

But Cork Insert has the ideal combination of STRENGTH PLUS FRICTION. When you apply the brake, the corks come into contact with the brake drum first. They compress gradually and ease the load down to the fabric. The light pressure required, and velvety smooth action of the buttons of cork coming in contact with the drums, mean such long wear that Cork Inserts are far the cheapest in the long run.

Cork Insert is a big money maker—one on which you can get deliveries

Cork Insert not only is a dependable money maker, not only is its use growing steadily, but it is a line on which you can get deliveries. It will pay you to push Cork Insert.

Advance Automobile Accessories Corp.
Dept. K 3-1, 56 E. Randolph St.
CHICAGO, ILL.

ADVANCE
CORK INSERT
TRANSMISSION LININGS FOR FORDS
One Set Will Outwear 3 of Any Other Kind
Makes a Good Car Greater
ADVANCE CORK INSERT TRANSMISSION LINING

$3 per set of 3
Rockies West, $3.25
Canadian Price, $4.50

ADVANCE
CORK INSERT
FAN BELT FOR FORDS
ADVANCE CORK INSERT FAN BELT FOR FORDS

$1
for 1917-18 Fords
85c for 1916 and earlier Fords
Canadian Prices: 1917-18 model, $1.50—earlier model $1.25

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., OCTOBER, 1918 No. 6

War-Time Conditions Discussed At Meeting of National Automobile Chamber of Commerce

Motor Car Industry Has Taken Contracts for Government Work In Excess of $800,000,000

Reports of Gasoline and Tire Situation Indicate Ample Future Normal Supplies For All Useful Motor Car Operations

Evidence of the manner in which the automobile industry is converting to war work was shown at the meeting of the National Automobile Chamber of Commerce held early this month, when the traffic committee's report showed car load shipments of automobiles for the month of September to have been only 11,700, as compared with 20,538 for the same month last year. One plant after another is converting to war work as rapidly as possible, some of them with 25 per cent. of capacity for the government, with others on a full 100 per cent. basis.

It was estimated at the meeting, at which Charles Clifton presided and which was attended by 103 manufacturers, that contracts for government work to an amount exceeding $800,000,000 have been taken by the automobile industry, resulting in a continued curtailment of passenger car production as the work of conversion is brought about. This includes the making of airplane motors, tanks, tractors, trucks, mine anchors, trailers, guns, rifles, revolvers, recoil mechanisms, steel helmets, ambulances, field gauges and scores of other articles for the war program.

Probably no other industry in the country of a similar size or importance has sacrificed so much of its product to supply the government needs in a big way as the automobile industry, which is the third largest manufacturing industry of the country.

At a meeting of the truck manufacturers in the afternoon the makers listened to reports of the gasoline and tire situation, which indicated ample future normal supplies for all useful motor car driving.

The makers are carrying on a campaign for conservation of all kinds of materials used in automobile factories, including repair parts, with the elimination of equipment of a character not absolutely essential.

The export committee meeting reported to the chamber its plans for exports of automobiles after victory is won. Exports of the automobile industry have exceeded $100,000,000 a year and countries throughout the world look to America to supply their needs for passenger and freight carrying vehicles. There were exports last year to 82 different countries, including 15 cars and one truck to Iceland.

At the truck meeting in the afternoon, with practically every important truck maker in the country in attendance, there was a general discussion of the government needs in trucks and the best measures for their prompt care. In addition there is an increasing demand for trucks for essential industries involved in war work directly and indirectly, which is placing a burden on the truck builders.

Victor L. Brown of the commercial vehicle committee, presided at the truck gathering, addresses being made by George H. Pride of the highways transport committee of the Council of National Defense on the work of that committee and the need for better roads, particularly for military uses.

George M. Graham spoke on "How the Motor Truck Industry Is Affected by Developments in Washington."

Other addresses included S. A. Miles on "Rural Motor Express;" H. G. Shirley on "Need for Uniform State Laws Governing the Use of Motor Trucks," and S. M. Williams, president of the Highway Industries Association, on "The Work of That Organization in Highway Matters."

The makers discussed in detail the suggested standardization of solid tires on motor trucks, wherein there will be eliminated a large number of the odd sizes that require the carrying of excessive stocks by dealers, bringing the number of sizes down to a comparatively small number, as was done in the pneumatic tires standardization plan, which resulted in the standardization of seven rims and nine sizes of tires, eliminating more than 200 odd sizes.

C. C. Hanch, chief of the Automotive Products Section of the War Industries Board, attended the meeting to tell the members of the requirements of that division and the new priority rulings under which passenger car manufacturers are permitted to balance their inventories under a curtailment of 50 per cent. from the 1917 production, to be accomplished by Jan. 1, while the truck manufacturers' production to be sold only to essential industries, is limited to one-third of their average production for the 18 months ending July 1, 1918.

Motor Trade Waged Enthusiastic Campaign for Fourth Liberty Loan

The motor trade and industry throughout the country waged a campaign for the Fourth Liberty Loan that is worthy of more than passing notice, as not only did the various organizations face a larger quota than during the three previous loan campaigns, but since the earlier loans were launched the war situation has placed numerous handicaps on the business that has naturally put heavy odds against the raising of large sums of money.

Realizing, however, that through the peculiar nature of their business it had through necessity become the object of a number of restrictions, the car dealers and makers only doubled their efforts in behalf of the government and while all reports are not complete as yet on the results reached, it is known that the trade in almost every instance exceeded its quota and did so early in the campaign.

In New York City, which is the largest distributing center for automobiles and supplies in the country, the trade faced a quota of $20,000,000 as its share of the loan, an amount 75 per cent. more than during the previous campaign, yet on the eve of the close of the drive the trade there had raised a total of $15,100,000, with every promise of attaining its goal in the few days remaining.

The motor, accessory and tire trades in Boston made an excellent record in the Liberty Loan campaign. When the total figures are counted up it will be found that the trades have reached the $1,300,000 mark at least.

C. P. Rockwell, who had a section to look after, was made chairman of the committee in charge after Mr. Coe entered the army. So that much of the detail work devolved upon Mr. Rockwell and his office force.

Harry Noyes made the largest individual subscription, taking $110,000 worth of bonds. Alvan T. Fuller took $100,000 worth and J. W. Maguire subscribed for $65,000, these being the three largest single ones. The Noyes-Buick Co. took $200,000, the Fiske Rubber Co. $105,000 and the Ford Motor Co. $90,000, these being the three leaders among the firms. The Noyes-Buick did not include Mr. Noyes' individual subscription. A number of the firms came through 100 per cent. Considering the illness which laid off many of the employees, which added to their burdens, and the fact that a number of them are still paying for the last issue of bonds on installments, makes the showing all the more meritorious. Mr. Rockwell states that all the firms, motor, accessory and tire companies are deserving of much praise for the patriotic manner in which they cooperated in the work. And he also states that the zone managers, who gave their time to the work, put great energy into their efforts. These men were: Zone 1, J. L. Hamilton; 2, H. H. Johnson; 3, J. T. Clinton; 4, R. B. Nettleton; 5, C. P. Rockwell; 6, Karl G. Harig; 7, J. T. Pace; 8, G. A. Stonburg; 9, Ray H. Paddock.

Philadelphia Raises Quota.

Group three of the industrial committee for the Fourth Liberty Loan in Philadelphia, comprised chiefly of members of the Philadelphia automobile trade, went "over the top," exceeding their allotment of $2,600,000. The patriotic achievement of the automobile men was made despite unavoidable handicaps which the government imposed on the industry, due to war conditions. In the Third Liberty Loan campaign the automobile group subscribed $3,713,000, exceeding their quota by $1,663,000. Subscriptions turned in on Saturday, Oct. 12, put the group "over" at the end of the second week of the drive.

The motor trades team at Des Moines, Ia., for the Fourth Liberty Loan went over the top with flying colors. A total of 1261 applications were secured, amounting to $366,000. In the third loan campaign the amount sold by the team was $300,000.

Additional subscriptions of $5,000,000 from the Ford interests and $3,200,000 from Dodge Brothers were instrumental in making Detroit the first large city to go over the top on its Liberty Loan quota. The subscription of the Ford organization was 150 per cent. greater than in the third loan. The other automobile concerns whose records show large subscriptions were the Packard Motor Car Co., with a total of over $2,000,000, and the Cadillac Motor Car Co., with approximately $1,487,000.

Sold Bonds to Customers.

Among the devices employed by New York dealers in carrying on the big drive for the Liberty Loan was that of the Colt-Stratton Co., which not only gave its share of sales activity to the work in which the entire trade shared, but also carried the proposition into the innermost details of its business. Those customers applying for parts or other forms of service were told no business would be done unless they bought one or more bonds across the same counter. As indicating the uniform loyalty of Dodge brothers owners about New York, but one customer failed to respond.

The Kelly-Springfield Tire Co., New York City, displayed in one of the show windows an effigy of a Hun soldier with arms outstretched overhead standing on a raised platform in the center of the window. A little to the right on a shaded yellow background was printed in large letters, "Every time you buy a Liberty Bond we get another 'Kamerad.'" On each side of the center figure were displayed two bronze busts, one of Pershing and the other of Foch, while at the base laid a death's head, Hussar's helmet and a cavalry lance.

In order to arouse the enthusiasm of its employees in behalf of the Fourth Liberty Loan, the Splitdorf Electrical Co., recently held a noon meeting in the factory yard. Lieut. F. Farquhar, a discharged wounded British Army soldier, gave a rousing talk. His appeal to his fellow workers was met with such enthusiasm that subscriptions were handed in to the amount of $125,000. He formerly held a position in the company's London headquarters.

I. A. HOWELL OF J. H. MACALMAN-HOWELL CO., BOSTON, DIES.

I. A. Howell, general manager of the J. H. MacAlman-Howell Co., Liberty distributors of Boston, Mass., died early in the present month. He was one of the best known men in the New England trade and had been engaged in the sale of Liberty cars since shortly after the Liberty's organization, having first represented the car in the firm of Howell Motor Co., of which he was president, and later joining forces with J. H. MacAlman, who is one of the oldest dealers in motor cars in point of service in the country and the president of the Boston Automobile Dealers' Association since its organization.

Ban On Sunday Use of Gasoline Is Lifted

If Stocks Again Fall Dangerously Low Request for Conservation Will Be Renewed.

Fuel Administrator Garfield has lifted the ban on the use of gasoline on Sundays, but states that should the gasoline stocks again fall dangerously low the request for conservation will be renewed. It is also announced that priorities will probably be given for shipment of gasoline overseas, which means that the war demands will be met from stocks ahead of the domestic demand.

The fuel administration in announcing the withdrawal of the request that motorists cease using their cars for any purposes except urgent business on Sundays, stated that as a result of the public's loyal response to the wishes of the government, 1,000,000 barrels of gasoline had been saved for military purposes.

The peak load of domestic consumption is passing, in the belief of the oil division of the fuel administration, and it is hoped that overseas shipments will not be quite so heavy. Through a priority order giving preference at refineries to shipments for overseas prompt supplies for Europe will be assured, and if any shortage exists it will be domestic.

The stocks of gasoline east of California, it is stated, have not materially increased or decreased. On Oct. 14 the stocks were 3,134,731 barrels of motor gasoline and 166,369 barrels of aviation gasoline. This represents the entire reserve and is not available for export, as it is stored in territory as far west as Wyoming and includes storage in various interior oil producing localities.

THE 1918-19 EDITION OF THE MODERN MOTOR CAR.

The 1918-19 edition of "The Modern Motor Car," by H. P. Manly, which covers in a thorough and comprehensive manner the care, repair and upkeep of practically every type of automobile, has been announced by the publishers, Laird & Lee, Inc., 1732 Michigan avenue, Chicago, who are distributing the book at $2 a copy.

The new edition has 536 pages, with 225 illustrations, and makes a valuable reference book for the car owner, dealer, garage man or mechanic, as the subjects of construction, care and adjustment of motor car parts, together with shop and roadside methods of trouble location and repair are treated in a simplified style, while information is also given on how to buy, make and use materials and supplies. The latest developments in automobile and repair shop practises are incorporated in the volume, bringing it up to date and covering practically every point which would interest one in most every branch of the automobile trade, as well as making it particularly valuable as student's text book.

Increase In Ford Surplus Over $40,000,000

Balance Sheet as of July 31 Last Shows Total Assets of $203,749,460.

The statement of the Ford Motor Co., filed with the secretary of State of Massachusetts, showing the company's balance sheet as of July 31 last, reveals an increase in surplus of over $40,000,000. The total assets and liabilities of the company as compared with the previous year have also grown enormously, being now figured at $203,749,460, as against $165,975,002 last year.

The statement as filed is as follows:

ASSETS.	July 31, 1918.	July 31, 1917.
Real estate....	$37,117,363	$28,180,582
Machinery and equipment....	29,335,982	25,637,959
Material in process	44,522,562	46,762,457
Cash and debts receivable ...	91,471,851	64,619,763
Patent rights..	67,997	66,637
Inventories ...	1,231,906	706,286
Investments ...	1,815	1,314
Total........	$203,749,460	$165,975,002
LIABILITIES.		
Capital stock..	$2,000,000	$2,000,000
Accounts payable	10,653,327	19,983,256
Accrued expenses	5,950,564	5,952,902
Depreciation reserves	9,902,841	6,433,936
Surplus	175,242,728	131,604,907
Total........	$203,749,460	$165,975,002

Reduce Proposed Taxation On Motor Cars and Accessories

"Motor car owners generally will unhesitatingly acquiesce in the revised taxation which the Senate Finance Committee has just placed upon self-propelled vehicles that are now in use," comments President David Jameson of the American Automobile Association, referring to the action of Chairman Simmons and his Senate associates in practically cutting in half the horsepower tax contained in the taxation measure passed by the House of Representatives.

"It was to be expected that the automobile would be included in the things selected for revenue raising, for, while the average car is nine-tenths utility, we must grant that a fraction of its operation is for enjoyment purposes," avers the A. A. A. head. "With the new rates extending from the lower powered cars at $5 and the highest ones at $25, there can be no pronounced objection, especially since the Senate committee also cut in half the tax on new cars, reducing it from 10 to five per cent., and took similar action in regard to tires and accessories.

"In the communication addressed by the A. A. A. to the Senate Finance Committee, we set forth that the automobile already had received considerable taxation attention in the several states and in consequence it would be only just that in passing upon any Federal excise impost, even for war purposes, this fact should be kept in mind. The findings of the committee would indicate that our statement of the case may have met in no small degree the views of members.

"We also presented to Chairman Simmons for interpretation the question of the taxation of a car not in use during the war period, owing to the presence of its owner in service on the other side. The point was raised by one of our directors, Major John A. Hawkins, also an officer of the Automobile Club of Pittsburgh, who wanted to know if a man serving his country would be expected to pay a tax on a car which temporarily rested on jacks. Chairman Simmons brought the subject before the committee and a prompt reply came to the effect 'that in the case of an automobile that is not used at all there is no tax; the tax is upon the use of the car.' Previously there had been some doubt in the matter and the declaration from the Senate committee will be accepted with satisfaction.

"When the Senate will have passed its war tax measure and its conferees and those of the House come together, it is to be hoped that the representatives will concur in the action of the senators in giving the motor car its proper place as a present day necessity."

GENERAL MOTORS NET PROFITS FOR SIX MONTHS $26,078,120.

The General Motors Corporation reports for the six months ended June 30 last as follows: Net profits after all expenses of manufacture, maintenance, selling and administration, as well as ordinary taxes, insurance and depreciation $26,078,120; Federal taxes and extraordinary expenditures, $13,490,861; balance, $12,587,259; General Motors Corporation proportion thereof, $12,307,784; preferred dividends (six per cent), $590,304; undivided profits, $11,717,480.

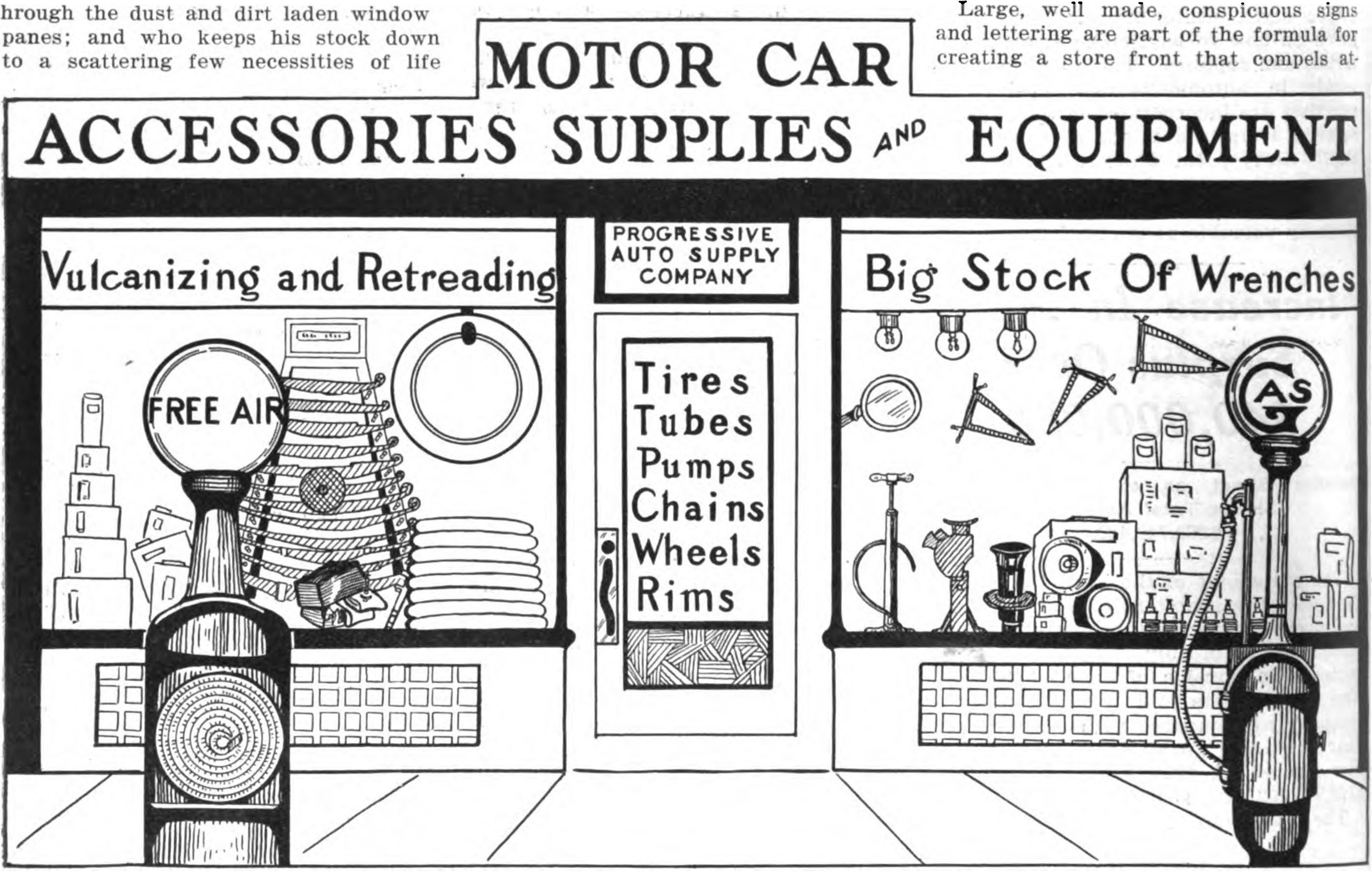
The balance sheet, as of June 30 last, compares with the balance sheet as of Dec. 31, 1917, as follows:

Assets—	June 30, '18.	Dec. 31, '17.
Permanent investments	$68,708,687	$38,931,935
Miscellaneous investments	5,922,688	2,030,273
Cash	31,186,737	18,865,645
Liberty bonds...	9,098,123	1,255,000
Notes and accounts rec....	23,975,413	13,595,539
Inventories	56,219,729	46,559,394
Deferred expenses	1,231,360	854,435
Good will.......	....	*11,697,503
Total assets..	$196,342,737	$133,789,724
Liabilities—		
Preferred stock.	$19,676,800	$19,676,800
Common stock..	105,141,700	76,873,300
Outstanding stock sub. cos. not owned by G. M. Corp...	540,500	540,500
Surplus sub. cos.	1,138,558	859,083
Accounts payable	16,032,126	10,665,718
Notes payable..	1,100,000	....
Taxes pay rolls, etc.	7,287,600	4,858,327
Reserve for two months proportion pfd. dividend	190,768	196,768
Reserve for Federal taxes and extraordinary expenditures..	15,865,735	6,939,019
Reserve for sundry contingencies	2,657,196	1,671,818
Surplus	26,705,753	11,508,392
Total liabilities	$196,342,737	$133,789,724

*Good will in the statement as of June 30, 1918, was included in the permanent investment account.

The surplus after payment of dividends at the rate of six per cent. on the preferred stock for the six months ended June 30 last is equal to 11.14 per cent. on the $105,141,700 outstanding common stock, or at the annual rate of 22.28 per cent. Therefore, it is apparent that during the first six months of 1918 the General Motors Corporation showed earnings on its common stock equal to an annual rate of 10.28 per cent. in excess of the 12 per cent. dividends now being paid on that issue.

"Drive Your Business Or It Will Drive You" Most Appropriate Motto By Which the Dealer Should Be Guided


MOTOR CAR
ACCESSORIES SUPPLIES AND EQUIPMENT
Vulcanizing and Retreading
PROGRESSIVE AUTO SUPPLY COMPANY
Big Stock Of Wrenches
FREE AIR
Tires
Tubes
Pumps
Chains
Wheels
Rims
GAS

The Well Dressed Store Front Is the Dealer's Best Asset.

Make Known the Fact That You Are in Business and in It Right with Every Line and Every Service to Offer.

The way a large number of automobile accessory and supply dealers conduct their business is suggestive of the archaic system of trade still pursued by the merchant at Podunk Crossroads, who keeps his merchandise well tucked away behind dusty counters in a room lighted by the few straggling rays of sunshine that can find their way through the dust and dirt laden window panes; and who keeps his stock down to a scattering few necessities of life and never orders anything else until he gets an order from some customer.

It will immediately be said that this comparison is drawn with considerable exaggeration and while it may be, the analogy is still true, as there is found an equally sharp contrast in the appearance of the business places of the most prosperous accessory dealers in a town and those who are just hanging on. This situation presents nothing but the working out to form of the adage that "nothing succeeds like success," as the prosperous appearing dealer really prospers and progresses, gaining momentum all the time while the other fellow continues to only hang on.

There is nothing fundamentally different about the business of selling automobile accessories and supplies from that of dealing in hardware, housefurnishings or anything else, and yet it would seem from the outward appearance of a far too large number of accessory stores that the proprietors think that through some special province they enjoy immunity from the laws of business that are really obligatory if one is to succeed. Almost without exception the prospective customer, in seeking a place to patronize will be influenced in making his choice by the suggestion offered through the outward appearance of the store, and if it is one indicating a progressive policy, that is what determines and fixes the selection. This rule is even more true of motorists in purchasing supplies for their car than with any other class, as it is the most transient business existing.

With these facts well established through experience it should not require excessive pursuasion to make dealers in this line realize the utmost importance of having his store front always in the most attractive condition that it is within his power to maintain. This is infallably true in every place where there is any competition, from the village supporting two stores to the city supporting over a hundred. It is a means through which the fact that the proprietor is alive, alert and well prepared to render any service, is not brought alone to the passing motorists, but to the public, so when anyone is asked the location of a place where accessories or supplies are on sale, this man gets the benefit, as his store is the one that has created stronger impression in the people's minds.

Large, well made, conspicuous signs and lettering are part of the formula for creating a store front that compels attention, but other things are equally essential, such as gas, oil and air supply stands at the curb and well stocked windows showing a great variety of articles. While the well stocked window not only lends to the general effect of progressiveness, it also is constantly the means of suggesting accessories and supplies to motorists that stop for gas or air and results in sales.

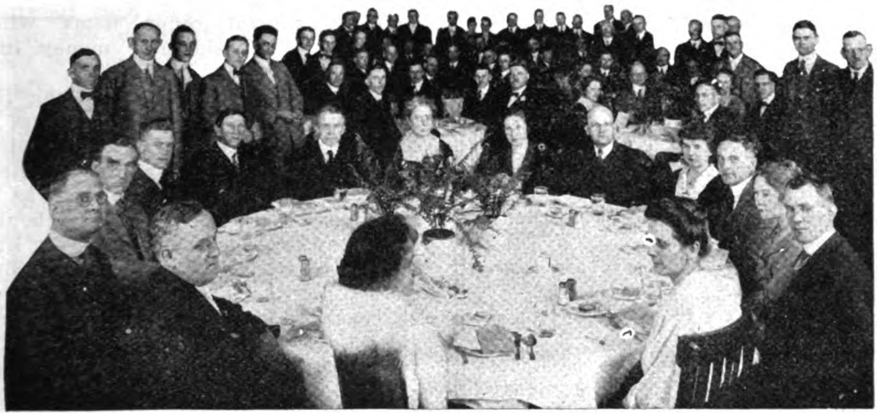
While there is some talk around to the contrary, there is more accessory and supply business in this country today than ever before and it is only a natural consequence of the unprecedented prosperity that exists on every hand and the man in this line of business, if he is in it to any extent, should make hay while the sun shines, as if he doesn't drive his business it will surely drive him and will drive him out.

PATRIOTISM DOMINANT SPIRIT AT DIAMOND CHAIN CO. DINNER.

Patriotism was dominent at a dinner given the evening of Sept. 12 by President L. M. Wainwright of the Diamond Chain and Manufacturing Co., Indianapolis, Ind., to a company that numbered 77 and included the heads of the different departments and divisions of the plant of which he is the executive. The dinner was pleasing as to cuisine, but the occasion was very largely for the purpose of stimulating patriotism and the activities of the guests in whatever would contribute to the successful prosecution of the war by the nation.

Following the dinner, after specifying the manufacturing plans of the company and its sales organization for the coming year, Mr. Wainwright urged upon the company that they manifest their patriotism by buying Liberty Bonds to the limit of their resources, and to use their influence with others to make similar purchase; that they buy War Stamps as freely and as frequently as they could do so with justice to themselves and dependents, and to exercise every endeavor in supporting the government in its war and war financing policies.

Secondary to these, according to the standards established by Mr. Wainwright, is that all of his 1000 coworkers exert their energies and talents toward bringing a continuous and increasing production of chain, which was needed directly and indirectly by the governments. He stated that all employees were expected to maintain rigidly the traditions of the Diamond Chain company for quality of product and service.



During the Dinner Given by President L. M. Wainwright of the Diamond Chain and Manufacturing Co., Indianapolis, Ind., to 77 Department and Division Heads.

NASH MOTORS CO. CHANGES PRICES IN TRUCKS AND CARS.

The Nash Motors Co., Kenosha, Wis., has announced price changes in Nash passenger cars and trucks, which became effective Sept. 1 as follows:

Pasenger cars: Model 681, five-passenger, $1490; 681, seven-passenger, $1640; 683, four-passenger roadster, $1490; 684, six-passenger sedan, $2250; 685, four-passenger coupe, $2250.

Trucks: Model 2081, one-ton chassis, $1650; 3018, two-ton chassis, $2175; 4018, Nash Quad chassis, $3250. All prices f. o. b. Kenosha.

Forty-Five Anti-Glare Devices Tested And Approved By New York State

A list of 45 anti-glare devices which have been tested in accordance with the provisions of the New York head lamp law and which are approved for use in that state, has been issued by Secretary of State Francis M. Hugo. The use of these devices, however, in some instances is modified, as the candle power of the lamps that are to be used is specified for certain types and in other cases the head lamps must be tilted to fullfill requirements.

This is the first list issued by any state where lighting devices that meet with the legal requirements have been named and it has created widespread interest, as the specifications under which the devices were approved were incorporated in the law after every effort was made to see that they were scientifically correct. Representatives of the Society of Automotive Engineers and the Society of Illuminating Engineers were conferred with by the officials of the Secretary of State Department before the law was drawn up and it is generally conceded to be the best statute regulating the use of head lamps that has so far been offered by any state.

The measure provides that:

1. The candle power of head lamps must be at least 1200 at a distance of 200 feet in front of the car and at a point between the roadway and 42 inches above it.

2. The candle power must not exceed 2400 at a distance of 100 feet in front of the car and at a point 60 inches, or any higher, above the road.

3. The candle power must not exceed 800 at a distance of 100 feet in front of and seven feet to the center of the car at a point 60 inches above the road.

These devices were tested with bulbs of the prescribed candle power and for this reason Secretary Hugo has issued suggestions for the use of the devices as follows:

1. See that the right candle power bulb is used.

2. See that lenses are properly placed and not twisted; that the top side is at the top and that the front is outward.

3. See that the tilt is correct. To do this have the car on a level surface in front of a wall or some suitable vertical surface, 30 feet or more distant. Remove the front glasses or devices and by focusing adjustments move the bulb backward and forward until the beam of the smallest diameter is obtained on the wall. By measuring the height of the center of the beam from the ground and comparing that with the height of the center of the head lamps from the ground, the tilt can be ascertained and adjusted as required.

4. See that the bulb is adjusted properly with respect to the focus of the reflector with the controlling device in place. Do this by observing the beam pattern on the wall.

Following is the list of the approved devices:

Devices	Beam horizontal B lamp	C lamp	Beam tilted B lamp	C lamp	Tilted feet per 100 feet
Bausch & Lomb	..	..	17	15	3
Conaphore, clear	17	13	24	20	1
Conaphore, noviol	17	13	24	20	1
Controllite	18	20	..	..	..
Clamert	18	15	..	..	..
Culver, radio	17	17	20	20	1
Coreylite	24	24	..	..	..
Crew-Levick, fractor	20	11	24	20	1
Dillon	10	..	..	..	..
Dwellelight	10	..	..	..	..
Enlow, prism dimmer	16	14	22	20	3
Hein, dimmer	24	24	..	..	..
Holophane	18	16	22	20	1
Legal level light	..	..	17	20	2
Lee Knight lens	11	13	18	24	2½-2*
Lenslite	18	16	22	20	1
Liberty	17	21	..	..	..
Letts	..	..	24	24	2¾
Legalite	..	..	17	20	3
Mac-Kno-Glare, bulbs	20	..	..	..	1
Mac-Kno-Glare, caps	..	..	20	21	1¾
McKee	11	15	17	21	1
More-Lite, clear	10	..	..	..	..
MacBeth	21	24	..	..	..
Nu-Ray	11	10	17	15	1
No-Glare-On bulb	10	..	..	..	..
Non-Glare, lens	..	..	17	20	4
Non-Glare shade	24	24	..	..	..
Osgood	15	15	20	20	1
Ormiston	24	24	..	..	..
Prismolite	13	12	20	20	2
Primolite	19	23	..	..	..
Raydex	..	..	22	20	1½
Right	11	13	19	21	3
Sun-Ray	10	14	17	20	1
Saferlite, diffusing	10	..	..	..	..
Saferlite, deflector	..	..	17	20	3
Stryker, deflector	17	..	24	..	¾
Shaler, roadlighter	21	24	..	..	..
Stop-Glare lens	10	..	..	..	..
Stewart	12	..	..	..	..
Suess Rib Lens	..	..	17	14	3
Victoria, non-glare bulb	18	10	..	..	..
Warner	10	..	..	..	..
Webb Multifrax	..	..	17	17	3

---

*Manufacturer's adjustment.

The term "B lamp" designates the Tungsten head lamp bulbs and the term "C lamp" the gas filled type.

Knowing the Cost of Doing Business And How to Correctly Figure The "Mark-Up On Goods

By Walter Engard.

There is no subject of more importance to the successful management of any business than that of "knowing the cost of doing business and how to correctly figure the "mark-up." The failure on the part of the business man to know to a certainty what his cost of doing business may be and how to figure his mark-up correctly has driven more dealers into the bankruptcy courts than any other one thing.

These two fundamentals are the basic principles upon which all really successful businesses are built. The dealer may have all the other fundamentals of success—good service, good merchandise, courteous employees, etc.—but if he does not know what his costs of doing business may be or if he erred in his method of figuring profits, his chances for making money are very slim. In this day of advancing costs and decreasing profits it behooves the dealer to know, not merely guess at these fundamentals. Because the mark-up can be figured correctly, it is absolutely necessary to know just what the costs of doing business are so that the per cent. of mark-up will be sufficient to cover and leave a fair margin of profit.

Determining Accurate Costs.

In order to determine accurate costs it is necessary to keep an accurate record of all money spent for expense. To find the cost of doing business in per cent., take the total gross sales for the year and divide them into the total cost of doing business (expense); this gives per cent. of expense. For illustration, say the total gross sales for the year are $50,000 and total expense is $9573.50. In order to know just what per cent. of all money received is for expense, divide $9573.50 by $50,000. The answer will be 19.14 per cent. The rate so obtained is only as accurate as the figures which produced it. If every item of expense in the $9573.50 has not been included the per cent. of profit as found will not be accurate. All expenses will come out of the gross profit whether they have been charged in it or not. What the expense book doesn't show the bank balance will.

The cost of doing business, of course, is exactly the same whether all items of expense have been charged in or only part of them. If all items of expense are not included, however, the dealer may be led to believe that he can fix a lower selling price than he can afford. He does not realize that his margin of profit will be immediately absorbed by the extra expense which he has failed to charge to his cost of doing business. This extra cost may not show on his books, but it is there just the same, and will come out of the profits before the end of the year. For example, say that in figuring the per cent. of doing business failure is made to charge into the expense account items which amounted to $500, and instead of the expense being $9573.50, as charged on the expense account, they were $10,073.50. Because of the failure to charge this extra $500 costs were computed on the figures shown by the expense account and it proved to be 19.14 per cent. For example, say that a net profit of 5.4 per cent. is desired and the goods are marked for a gross profit of 25 per cent. The gross profit on $50,000 business would be $12,500, deducting the expense of doing business there should be a net profit of $2926.50. But instead of a net profit of $2926.50 there is only $2426.50, a difference of $500, or only a net profit of 4.8 per cent. This is a very simple example.

Building Profits

If you sell supplies there are overhead costs.

If you do repairing there are overhead costs.

If you store and care for cars there are overhead costs.

If you do vulcanizing there are overhead costs.

If you do welding there are overhead costs.

If you rent cars there are overhead costs.

If you rent trucks there are overhead costs.

If you sell cars there are overhead costs.

Whatever you do there is some cost attached to it. To make money you must know that cost and to operate at a profit you must know what percentage of profit you can add to your costs to make a consistant revenue.

You can base your actual operating costs on the past year's business and add to that cost what you really know it will cost to operate the coming year and allow an increase that you know you will have to meet.

In the case of one retail dealer who figured a gross profit of 20 per cent. and his cost of doing business at 10 per cent. (he was not in the business of selling supplies or running a garage or repair shop, however). From all of his records 10 per cent. of his total sales would cover his cost of doing business, as shown by his expense account, but when the end of the year came, instead of a net profit of 10 per cent., as his books showed he should have, his net profit was only 3.5 per cent., a difference of 6.5 per cent., or more than $5000. For his sales amounted to close to the $100,000 mark. The following year he resolved to know just what was the matter. He kept a strict account of all items of expense. He discovered that he had not charged into his cost of doing business his wrapping expense (this item alone amounted to a considerable sum in a year), nor had he charged losses and depreciation to expense, as well as several other items which amounted to considerable money in a year's time.

But this was not the only thing that the keeping of an accurate account of all costs did for this dealer; it helped him to keep a closer tab on expenses. When his cost of doing business was being figured at 10 per cent. he thought they were low and gave them very little thought or study. But when his records showed him that they were 16.5 per cent. he began to give them his serious consideration. He installed a new system of management; he kept his eye on the expense account and today with every item of expense charged in, he is doing business on a cost of less than 10 per cent.

Items Entering Into the Costs.

What items enter into the cost of doing business? A list of items that enter into the cost of doing business and that should be charged to expense, follows:

1. Interest on the net amount of total investment; that is, money invested in the stock and fixtures.

2. Rental on all real estate or buildings owned by proprietor and used in his business at an equal rate to that which would be received if rented or leased to others. If quarters are rented charge all rentals to expense.

3. Salaries. This expense will include all salaries paid to employees, also a salary for proprietor equal to that which he would command if in the employ of another and holding the same position. All members of the proprietor's family who may be employed in his business should also be treated in a like manner.

4. Depreciation on all goods which are carried over and upon which a markdown has to be made because of change in style, damage or for any other reason.

This will also include concessions in price to patrons given special quotations on a large purchase. The depreciation here will be the difference between the regular retail price and the amount received.

5. Depreciation on fixtures, tools, delivery equipment or anything else suffering from age or wear and tear.

6. Donations and subscriptions given to church, lodges, etc.

7. All fixed expenses such as taxes, insurance, water, light, fuel, etc.

8. Incidental expenses, such as drayage, postage, office supplies, livery or expenses of horse and wagon, telephones, telegrams, advertising, canvassing, etc.

9. Collection expense.

10. Losses, goods stolen, bad accounts, etc.

The above list covers most every item in the operation of an average business, but in order to keep an accurate account of all expenses an expense book should be kept. This book should be subdivided into 12 separate divisions. These headings should be: Rent, salaries, advertising, drayage, delivery, heat and light, supplies, insurance and taxes, wrapping expense, depreciation and shrinkage, bad debts and miscellaneous expense.

Must Know Costs

If you know what it costs to do business you can then build your business to the profit making point. You never can until you know. If you do show a profit without such knowledge it is all luck and when the pinch comes you will be all at sea. Furthermore, if you do know and are making a profit you can add to it.

Stop the leaks, such losses are the easiest profits earned. Do not make one department earn the dividends and carry the others. Get your overhead costs in all departments.

If you are losing in any one department learn the operating costs before increasing the prices for either goods or labor. It may be in the waste through lack of common sense system.

If you do work or sell goods at a loss let the other chap have the business. It may be in his particular line and in it he can make a profit. Take on the work that will show a profit or sell the lines that you can place and show a gain. This will not hurt your business or help the other chap. If you make money you can give the service and if you do you will secure the patronage and profit.

Under each heading will be charged every item of expense pertaining to that department, as for instance all forms of publicity will be entered under the heading "advertising," including donations and subscriptions, bill boards, newspaper space, dodgers, etc. Under the heading of "wrapping expense" will be entered such items as boxes, paper, twine, sacks, labels, etc. Under the "miscellaneous" expense all items included in the other divisions, such as soap for cleaning windows, toilet paper, etc., will be recorded. This expense will include hundreds of small items which usually are overlooked in figuring costs.

Here is included every expense itemized and it can be seen at a glance just how the expenses are running. The dealer will also have a better control over his expenses. At a moment's notice the advertising expense can be totaled and whether it is too large or whether more can be spent can be determined. By this system the dealer will know just where he stands; just where he should economize and where he should make investigations to stop losses.

With the exact cost of doing business the dealer is in a position to correctly figure his mark-up, providing he uses the right method. It is unfortunate, but nevertheless true, that there are a great many dealers doing business today on very little or no profit. Some are doing a large volume of business, yet at the end of the year, after long hours and strenuous work, they make the unhappy discovery that they have accomplished very little in the way of profits. They have nothing to show for their work and worry. This condition is due very largely to their failure to correctly figure the mark-up. It is fundamentally important that every dealer should know exactly how to mark up his goods in order to obtain a profit. Moreover, he should know why the method he uses is right. If he uses a mark-up formula he should know why that formula works.

Methods of Figuring "Mark-Up."

There are two methods of figuring mark-up. The first bases the percentage on the sales; the second bases it upon the cost. Either method is correct. But disaster comes when the dealer mixes the two and fails to realize what he is doing. The first method, based on the total sales, is the simplest, the most satisfactory and by far the easiest and most accurate. In this the selling price equals 100 per cent., or 100 parts. Of this total the cost of the merchandise equals so many parts, the cost of doing business so many parts and the net profit is represented by the number of parts remaining. The sum of all the parts equal 100, no matter how they may be divided.

To illustrate, take an article that costs $4.50 and find the selling price. Say the cost of doing business is 15 per cent. and a net profit of 10 per cent. is desired. One hundred per cent. or 100 parts equals the selling price; 100 per cent. minus 15 per cent., the cost of doing business, and 10 per cent., the net profit, is 75 per cent., which equals the cost. Therefore, 75 per cent. equals $4.50.

75 per cent. equals $4.50.

1 per cent. equals 1/75 of $4.50, which is six cents.

100 per cent. equals 100 times six cents, which is $6, the selling price.

Of the selling price ($6) 15 per cent. goes for the cost of doing business, which is 90 cents; 10 per cent. is net profit, or 60 cents. The remainder, $4.50, represents cost of merchandise.

Simplicity of Method Shown.

This is a very simple method. It is perfectly clear that if the number of parts in any of the three divisions be changed the change will affect one or both of the other parts, since the total must always equal 100 parts. Suppose for example, that the cost of the article is 85 per cent. instead of 75 per cent. If the cost of doing business remains the same, nothing is left for net profit. Again suppose the cost of the article remains as originally at 75 per cent., but the cost of doing busines is reduced to 10 per cent., then the net profit increases to 15 per cent. A change in any one of the parts, in other words, is bound to affect one or both of the other parts.

The second method of figuring mark-up is based on the cost. In this, 10 per cent. or 100 parts represents the cost, instead of the selling price, as in method No. 1. The cost of merchandise will always be 100 parts, but the cost of doing business and the net profit may be any figure. In using this method of figuring mark-up the cost of doing business must be based on the cost of merchandise; also the net profit. Probably more errors are made at this point than anywhere else. The error usually comes from the fact that as a rule the average merchant figures his cost of doing business and the net profit as a percentage of sales. Then when figuring mark-up they take their cost of doing business per cent. as based on

(Continued on Page 43.)

Adopt A System

Keep working yourself these times and build up every branch of your business so that it will be turning in a profit. If you cannot make money in one way the door is wide open; take on other lines that will sell and show a net gain. There is money spent and as long as there are 5,400,000 passenger cars and 300,000 trucks in use there must be business for you.

If your accounting methods are not comprehensive, correct this weakness in your business. You can swing a simple system; any good bookkeeper can fix you out and start you off with one that will just fit in with your requirements. You can do the rest. Don't guess any longer. Start to know at once. Facts may vary, but figures seldom do and until you have the records you can never get your figures.

This article is a whole business lesson in itself. If you do not believe it just ask yourself a few questions and then see how you fit in with your own business. If you know the facts, discuss it, it will refresh your memory and make you even more particular about overhead costs and profits.

Activities of Prominent Men of the Industry

V. C. Fuller, Traveling Representative of Bearings Service Co.

V. C. Fuller has been made special traveling representative of the Bearings Service Co., Detroit, and attached to the main office in that city. He will visit the company's distributors. Mr. Fuller was formerly with the Dictaphone Co.

Lafayette Markle, for a considerable period vice president and assistant general sales manager of Republic company, has resigned that connection and will in future devote himself actively to the operations of the L. Markle Co. and the Chicago-Republic Truck Co., both of which he largely controls. When Mr. Markle joined the Republic organization he retained his interests in these companies and as they have increased in importance he must concentrate his endeavors upon them.

Norval A. Hawkins has entered the United States Army Ordnance Department as an assistant to Major George D. Wilcox, who has charge of the Motor Transport Service for the Detroit district. Mr. Hawkins is sales manager for the Ford Motor Co. and will resume his duties with the company when his services are no longer required by the government.

Frank W. Hodgedson is now at Washington connected with the Food Administration. He was formerly manager of the C. S. Henshaw Co., Dodge Brothers dealers, Boston.

F. J. Jarosch has become associated with the Liberty Engineering Co., Lancaster, Pa. He is secretary and manager of the company. This company was recently formed for consulting, designing, research and development work. Associated with him are J. E. Perkinson; vice president; C. W. Lea and treasurer, R. A. Heiland. Mr. Jarosch was formerly chief engineer of the Bearings Co. of America.

M. Bleiweiss, who formerly served as assistant to sales manager and factory manager of the Premier Motor Corporation, Indianapolis, Ind., has been appointed manager of the planning department and stores of the Templar Motors Corporation, Cleveland, O.

Zeno D. Barns has become associated with the general department of the Aluminum Castings Co., Cleveland, O. He was for the past three years connected with the Westinghouse Air Brake Co. as non-ferrous metallurgist.

Fred W. Vormelker is now efficiency engineer of the Russel Motor Axle Co., North Detroit, and will have charge of all work pertaining to the following departments: Time study, routing, factory time, employment and efficiency.

Charles M. Steel has returned overseas to continue his work with the Y. M. C. A. He is located in Paris and is in entire charge of the entertainment division of the Y. M. C. A. work in France. He was formerly vice president of the Carl M. Green Co., Detroit, and has been on leave of absence for the past two months.

George T. Bryant is now sales manager for the Hide, Leather and Belting Co., Indianapolis. He was formerly connected with the Russell M. Seeds Advertising Agency. The Hide, Leather and Belting Co. are the manufacturers of leather belting and parts for cars, trucks and tractors.

Samuel W. Prussian has accepted a position in the quartermaster's department for the duration of the war. He is president and owner of the Guaranty Truck Co., Cambridge, Mass.

Clay C. Howery has become associated with the American Steel Supply Syndicate, Detroit, as general manager. The management has been reorganized and the company equipped with an extensive screw machine and heat treating department. The corporation is working entirely on government orders, manufacturing parts for engines. He was formerly associated with the production and purchasing departments of the Continental Motors Corporation, Detroit.

Lafayette Markle, Former Assistant General Sales Manager, Republic Motor Truck Co.

Guy B. Wright, Formerly with the Stewart-Warner Corporation, Now with the Buda Co.

Guy B. Wright has joined the sales force of the Buda Co., Harvey, Ill. Since 1916 he has been western sales manager of the Stewart-Warner Corporation and previous to that time was connected with the Vacuum Oil Co. in various capacities for 14 years, being in charge of the sales of motor vehicle lubricants.

A. C. Dallach is now operating a large manufacturing plant at La Grange, Ill. He was formerly proprietor of the Machinery and Motor Co., Quincy, Ill., and has sold his interest to the E. C. Long Co.

B. F. Baldon, who was formerly manager of the Baldon Motor Service and Repair Co., Quincy, Ill., is now service manager with the Battery Electric Garage.

Glen Cutforth has taken the position as service manager with the Topeka Auto Co. He was formerly service manager with the Cutforth Brothers.

Frank D'Arcy has become associated with the Quincy branch of the Overland Automobile Co. as mechanical engineer. He was formerly manager of the Standard Oil Garage, Quincy, Ill.

C. W. Whitson has been appointed general sales manager of the Panhard Motors Corporation, Grand Haven, Mich. He recently resigned from the Fulton Motor Truck, Farmington, L. I.

Dan Cohen has been elected president and treasurer of the Fulton Motor Truck Co. of Newark, N. J. The company will distribute Fulton trucks in New Jersey.

Fred H. Miller is now connected with the Manhattan branch of the Packard Motor Car Co. For the past six years he was manager of the Brooklyn, N. Y., branch. Charles G. Embleton becomes Brooklyn manager.

Stewart W. Munroe has joined the Detroit branch of the Harroun Motors Corporation, succeeding R. H. Schmittdiel, who has rejoined the forces of the Paige company, having been appointed retail sales manager of the Detroit branch.

A. B. Jones has been appointed by the American Red Cross to the post of director of transportation and distribution of Red Cross Supplies in France. He is second vice president of the B. F. Goodrich Co., Akron, O.

Jay E. Chilson has been appointed a representative for L. H. Gilmer Co., Tacony, Philadelphia, Pa., in Chicago and adjacent territory. Mr. Chilson will look after the requirements of tractor manufacturers and jobbers. He was formerly of the H. W. Johns-Manville Co.'s Chicago office.

A. W. Redlin has been appointed assistant works manager of the Erd Motor Co., Saginaw, Mich. For the past two years he was division superintendent of the Mitchell Motors Co., Racine, Wis.

T. P. C. Forbes has been made assistant sales manager of the Fulton Motor Truck Co. For 10 months Mr. Forbes has been traveling representative for the Fulton.

E. M. McLein has joined the Oneida Motor Truck Co., Green Bay, Wis., where he will be connected with the office of the director of sales. He was formerly advertising manager of the Stegman Motor Car Co.

Charles E. Becker has entered the service and was formerly advertising manager of Jones Motor Car Co., Wichita, Kan.

Ralph J. Handy, who was formerly distributor of the Tonford truck attachments in Detroit, has become sales manager of the Lauton Truck Co., Youngstown, O.

W. G. Bell, for the last four years assistant sales manager in Canada for the Studebaker, has become Canadian sales manager of the Cleveland Tractor Co.

Frank L. Wurl has been appointed sales engineer of the Remy Electric Co., Detroit, Mich. He has been with the company for several years as electrical engineer, where he was head of the research laboratories.

William H. Moore, who was formerly manager of the White company's branch at Pittsburgh, Pa., has succeeded R. H. Johnston as manager of the New York branch. Mr. Johnston has been assigned to special executive work with headquarters at Washington, D. C.

C. A. Spear is now New York State division sales manager of the Selden Truck Sales Co., Rochester, N. Y. He succeeds L. S. Hallowell, who has become connected with the Philadelphia Selden sales agency.

Frank M. Eldredge, Detroit, has been placed in full charge of the sales and advertising department of the L. V. Fletcher & Co., New York. He has been handling all the national advertising for the company for the past year and will now take on the sales department.

Frank M. Eldredge, Sales and Advertising Manager of L. V. Fletcher & Co.

Guy E. Tripp has been made brigadier-general United States Army and placed in charge of the production of ordnance material. General Tripp is succeeded as head of the Production Division by Colonel C. C. Jamieson.

Harry W. Ford has gone to Washington and is now associated with Colonel Barret Andrews in the reorganized Army Transport Corps under General Drake. He was former president of the Saxon Motor Car Corporation, Detroit, Mich.

George C. McMullen is now western representative of the Timken Roller Bearing Co. His headquarters are at San Gabriel, Cal.

S. A. Campbell, who was formerly sales manager of the Warnola Mfg. Co., New York, is now associated with the Bay State Pump Co., Boston.

Curtis B. Lyon is now in charge of the Brooklyn branch of the Wm. Parkinson Motor Sales Co., which was recently opened. The company is the distributor of Stutz cars.

Guy E. Tripp, Appointed Brigadier General in U. S. Army.

E. S. Ralph has become advertising manager of the R. & P. Tractor Co., Alma, Mich. For several years he was in the advertising department of the American Seeding Machine Co., Springfield, O.

Auguste Choteau has been commissioner a second lieutenant in France. He was former vice president of the Bittel-Leftwich Tire Co., St. Louis, and financial advisor of five other accessory companies.

Earl Moore is now local sales manager of the Moore Motor Car Co. in St. Louis, Mo.

Edward Kohlman succeeds R. L. Johnson as manager of the parts department of the Hudson-Phillips Motor Car Co., St. Louis, Mo. Mr. Johnson has been called to Camp Pike to begin training for a commission in the army.

Neal J. Downey has been appointed sales manager of all departments of the KisselKar Co., and the Edwards Motor Car Co., Milwaukee, Wis. The company is the distributor of the Kissel and the Dodge. For eight years Mr. Downey was manager of the used car department of the companies.

Emil Grossman has gone into business under the name of E. G. Manufacturing Co. at 50 West 54th street. The company's business consists of locating surplus stocks of automotive equipment and supplying jobbers whose stocks are short. Mr. Grossman was formerly president of the Emil Grossman Manufacturing Co.

C. L. Fox is now in Jacksonville, Fla., and is training in the Motor Transport Corps. He was formerly assistant sales manager of the Saxon Motor Car Co.

Donald F. Whittaker has become assistant to H. A. Conlon, vice president of the Acason Motor Truck Co., Detroit. He has charge of sales and was formerly advertising manager of the company.

Hamilton Olive has resigned as sales manager of the Federal Motor Truck Co., St. Louis, Mo., to become district sales manager for the Vim Motor Truck Co. of Philadelphia, Pa., in Oklahoma, Texas and Missouri.

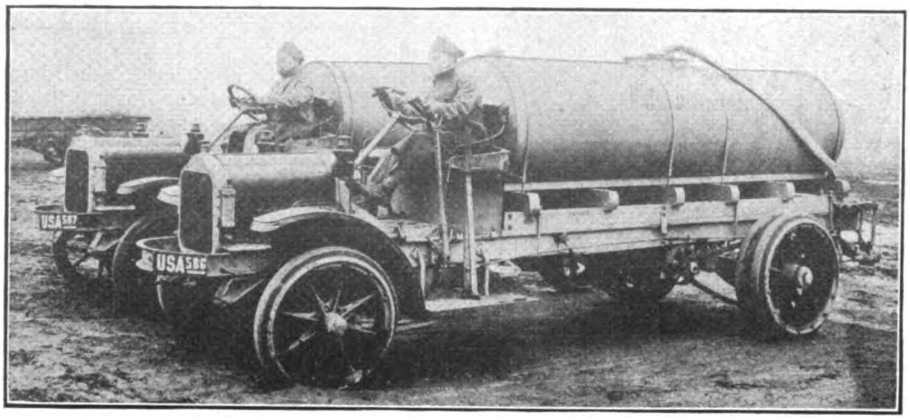
C. O. Dixon has been appointed manager of the new branch of the Standard Roller Bearings Co. He has been for several years with the motor accessory department of the Shapleigh Hardware Co., St. Louis, Mo.

William A. Scharon has become associated as advertising manager of the tractor bearings division of the Hyatt Roller Bearing Co., Detroit. He was formerly connected with the advertising department of the Packard Motor Car Co. and the Timken-Detroit Axle Co.

Gorden G. Atwell, Nacogdoches, Tex., has been appointed by the Van Spring Oiler Co. of Chicago, their southern distributor. The Van Spring Oiler Co. is located at 222 N. Wabash avenue, Chicago, and make a complete line of Van Spring Oilers for pleasure cars. They are now working on a complete line of Van oilers for the trucks of America and will show these at the Chicago show.

News of the Motor Car Industry In Brief

The Chicago Pneumatic Tool Co. for the six months ending June 30 reports profits of $889,009. Shipments for the first six months of the year were valued at $5,179,318, as compared with $3,926,703 for the corresponding period of 1917.



To Minimize the Dust Storms at One Army Cantonment in Kansas More Than 30 Miles of Highway Are Watered with Tanks Mounted on White Three-Ton Chassis.

The Sun Motor Car plant at Elkhart, Ind., has been sold to W. L. Huffman of Omaha, who will use it as a truck factory.

The Auto Indicator Co., Grand Rapids, Mich., has been reorganized and will continue the manufacture of the four-in-one safety signal. Its new capitalization is $50,000 and the officers are: W. W. Huelster, president; E. C. Cilley, vice president; Joseph Renihan, secretary and treasurer.

The King Motor Car Co., Detroit, Mich., has announced a new price schedule, which went into effect on Sept. 23. The touring car has been advanced $220 to $2370, and the foursome has been advanced a similar amount to $2570. The price of the sedan on the new list is $3200, an increase of $250.

The Chevrolet Motor. Co. has sent out a notice to stockholders of a meeting to be held in Wilmington, Del., Oct. 11, at which they will be called upon to approve the plan calling for the dissolution of the company and the distribution of its assets, which consist of 732,684 shares of the common stock of the General Motors Corporation. This stock will be distributed to Chevrolet stockholders on the basis of 1 1/7 shares of General Motors Corporation common stock for each share of Chevrolet Motor Co. stock. The various operating subsidiaries under the name of the Chevrolet Motor Co. will be retained as going companies, the plan caling for the dissolution of the Chevrolet Delaware corporation only.

John N. Willys, president of the Willys-Overland, Inc., has secured control of the Moline Plow Co. of Moline, Ill, one of the largest manufacturers of tractors and farm implements in the world. In addition to the main plant the company has over 20 branches

The Streator Motor Car Co., formerly of Streator, Ill., will be disposed of in a foreclosure sale which has been set for Thursday, Oct. 10, at Ottawa, Canada.

The H. H. Franklin Manufacturing Co., Syracuse, N. Y., makers of the Franklin air cooled car, have received a contract from the Wright-Martin Aircraft Corporation for parts of Hispano-Suiza engines.

The McGraw Tire and Rubber Co., East Palestine, O., has made a slight advance in certain sizes of casings. Dealers discounts remain unchanged.

The Kales Stamping Co., Detroit, Mich., manufacturers of pressed metal parts, is building a two-story addition to its factory on Lafayette Boulevard. The building is 47x67 feet and contains 6000 square feet of floor space. It will be used for storage and stock purposes.

The Detroit Twist Drill Co., Detroit, Mich., has erected an addition to its plant, 33x70 feet., with 6100 square feet of floor space.

The Chandler Motor Car Co., Cleveland, O., has declared a regular quarterly dividend of $3 a share, payable Oct. 1 to stockholders of record Sept. 20.

The Standards Parts Co., Cleveland, O., has declared a regular quarterly dividend of 1¾ per cent. on the preferred stock, payable Oct. 1.

The Oakland Motor Car Co., Pontiac, Mich., is erecting two additions to its main plaint, one on either side of the entrance. The new quarters will be ready early in November and will provide additional office space, room for employees lockers, recreation and an expansion of the hospital ward.

The Goodyear Tire and Rubber Co., Akron, O., has declared the regular quarterly dividend of 1¾ per cent. on preferred stock.

Edward S. Smidt and J. H. Knox, 238 Central avenue, Newark, N. J., doing business as the S. & K. Specialty Co., with a factory at Irvington, N. J., have purchased the manufacturing and selling rights of the International lens, an anti-glare device for automobile head lamps.

The U. S. Rubber Co. has planned an issue of $6,000,000 five-year seven per cent. notes which, it is understood, will be used in refunding the $9,000,000 issue of General Rubber Co. debentures, which are due Dec. 1.

The Portage Rubber Co., Barberton, O., has declared a quarterly dividend of 1¾ per cent., payable Oct. 1 to stockholders of record Sept. 20.

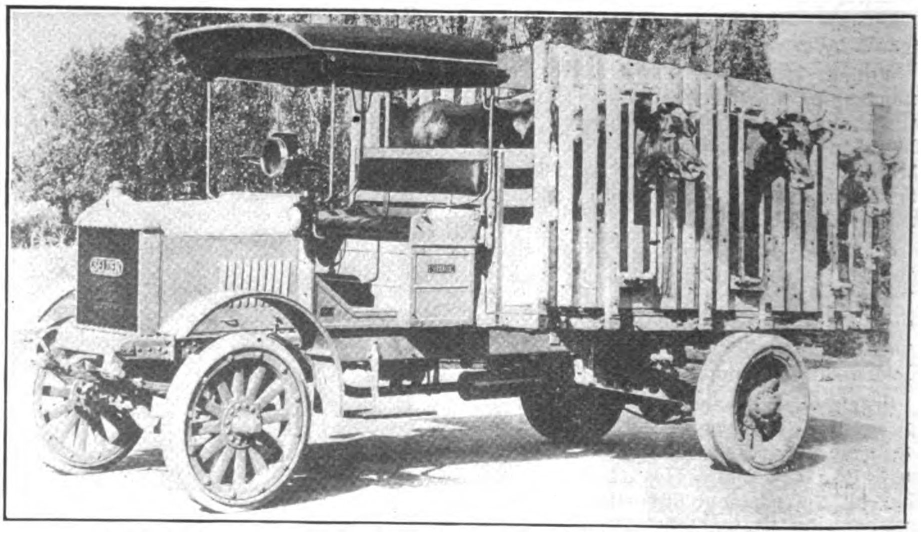
The Delion Tire and Rubber Co., Trenton, N. J., has increased its capital from $700,000 to $1,000,000.

The Chalmers Motor Corporation stockholders have ratified the plan for reducing the capital stock of the company from $7,060.000 to $6,400,000 by the cancellation of 132,000 shares of common stock, which was held in the treasury. The capital stock now consists of 400,000 shares of common without par value and 44,000 shares of the preferred with a par value of $100.

The Maxwell Motor Co., Inc., for the year ending July 31, 1918, made a net income of approximately $2,400.000, which amount does not include the excess profits tax or corporation tax in excess of six per cent.

The Oakland Motor Co., Pontiac, Mich., advanced the price of all Oakland models on Oct. 1 $100, the touring car and roadster being listed at $1285 in the new schedule and the sedan and coupe at $1860.

The Kissel Motor Car Co., Hartford, Wis., has been granted a patent cover-



Selden 3½-Ton Truck Equipped with Special Six-Stall Body for Carrying Cattle.

And Happenings Among the Parts Makers

ing its All-Year Cab for trucks and cars. The patent covers the interchangeable features of the cab as well as an interchangeable driver's seat.

The Stewart-Warner Speedometer Co., Chicago, Ill., has liquidated the remainder of its outstanding notes, which leaves no outstanding indebtedness except in current accounts. It is expected that net liquid assets of $5,000,000 will be revealed by the Oct. 1 balance sheet. The company is now on a 50 per cent. war basis, and additional war work is being taken up.

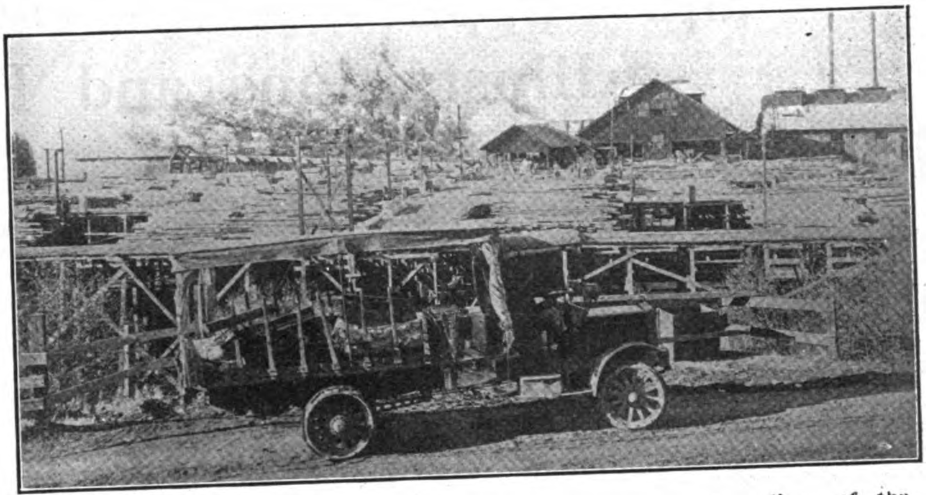
The Chandler Motor Car Co. has already delivered 100 of the 10-ton caterpillar tractors for the army and at present rate of production will have 1000 completed by January.

The Paige-Detroit Motor Car Co., Detroit, Mich., will be on a 100 per cent. war basis early in January. Only a few passenger cars are now being turned out, the bulk of the production at the plant being munitions.

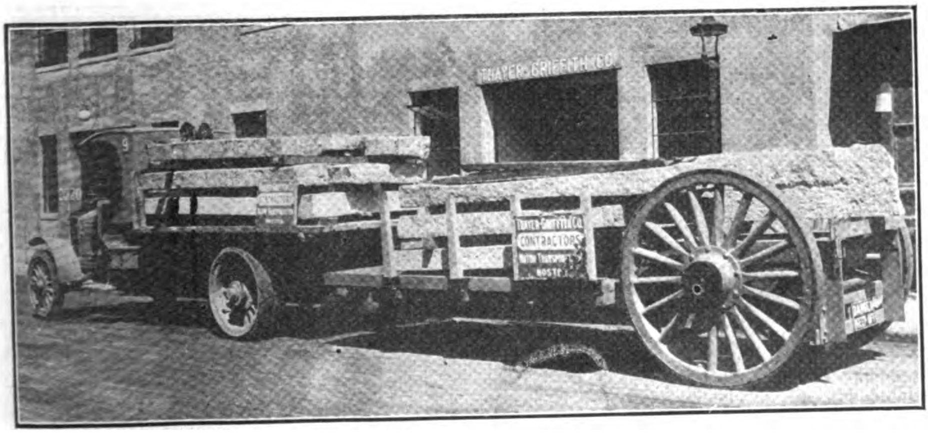
The Schacht Motor Car Co., Cincinnati, O., has doubled its floor space and manufacturing facilities through the erection of a large addition to its plant. Production on the larger scale will begin about the first of November, when fully 80 per cent. of the output will be government work.

The Liberty Carburetor Co., Detroit, Mich., has been organized to manufacture a special carburetor for the Ford car and which will be known as the Liberty. Jere McCarthy, president of the McCarthy Motor Sales Co., is head of the new company.

The Auto Body Co., Lansing, Mich., has received an order from the government for truck bodies, valued at approximately $500,000.



One of the Fleet of Five 3½-Ton Federal Trucks Used in the Operations of the Madera Sugar Pine Mills in California.



A Semi-Trailer Adapted for Heavy Haulage with a Five-Ton Truck, the Equipment as Shown Being Utilized for Carrying Stone.

The Olds Motor Works, Lansing, Mich., will be on a 100 per cent. war work basis by the first of the year. Deliveries on the order for 2000 kitchen trailers will be made this month and production will also be begun on an order for Liberty engines.

The Kuenz Radiator Co., Toledo, O., has been incorporated with a capital stock of $100,000 to manufacture radiators for De Haviland airplanes. The incorporators are: President, J. H. Armstrong of Cutting, Armstrong & Smith, Detroit, makers of motor car parts; vice president, J. A. Kuenz; secretary, S. E. Cobin; assistant secretary and general manager, E. C. Shields; treasurer, Charles D. Cutting.

C. R. Baker is now general manager of the Cadillac Sales Co. of Knoxville, Tenn. He has had wide experience in the automobile field, having been factory branch manager of the Akron, O., branch of the Ford Motor Co. and assistant manager of the branch at Cleveland.

Grover C. Phillips has been appointed an instructor in the quartermaster's department at Camp Joseph Johnson, Florida. He was formerly manager of the Phillips Garage of Chillicothe, Mo.

Peter H. Davies, in the sales department of the Grand Rapids, Mich., Overland Co. for a number of years, has been made head of a special department in charge of truck sales development.

P. C. Christman has severed his connection with the Gill Piston Ring Co. as treasurer and general manager and has been succeeded by L. H. Phelps. Mr. Phelps will assume full charge of Mr. Christman's duties in the Gill Piston Ring Co., the Bearings Co. of Pennsylvania and the Chalsmith Sales Corp. Mr. Christman is going into the government service.

T. P. C. Forbes, well known in the world of motordom as "Tommy," has been made assistant sales manager of the Fulton Motor Truck Co. and will cooperate with William Fulton Melhuish, president and sales manager, in the direction of Fulton sales. The announcement has not come as a surprise to his many friends, who know somewhat of his ability. It will be remembered that Mr. Forbes was for some time a partner of John N. Willys of the Willys-Overland fame, and that it was due to Mr. Forbes' spectacular work that the Overland obtained great wholesale distribution in a very short time. He was also prominent in the quantity distribution of the Reo and the Hudson throughout the country. For the past nine or ten months Mr. Forbes has been active in the sales department of the Fulton Motor Truck Co. as general traveling representative. During that time he has proven the merits of the Fulton to many dominating motor car merchandisers in prominent cities. Mr. Forbes turned his attention to wholesale motor truck distributing about a year ago and selected the Fulton as most fitted to fulfill the demands of large dealers. It has been announced that a greater production of Fultons has been planned for next year than the already large number which are now being built at the Fulton factory in Farmingdale, Long Island.

A. B. Jones, who is second vice president of the B. F. Goodrich Rubber Co., has been appointed director of transportation and distribution of Red Cross supplies in france.

Leon F. Hussey succeeds L. E. Fisher, who has resigned from the General Fireproofing Co. of Youngstown, O. He has been appointed advertising manager of the company. Mr. Hussey is now connected with Corday & Gross Co., Cleveland, O.

Directory of Automobile Accessories, Parts and Supplies, With Descriptions, Illustrations and Prices

IN OFFERING the trade an up-to-date list of accessories, parts, fittings, machinery, tools, equipment and supplies, with descriptions, illustrations and prices of articles that are now in production or which are carried in stock and can be secured by jobbers and dealers, the Accessory and Garage Journal and Automobile Journal is offering a service that can be obtained through no other medium. This information is being compiled from the most recent advices direct from manufacturers.

The trade in the motor industries, whether dealing exclusively in automobiles or not, does not have to be told that from now on and for an indefinite period they must engage largely in the business of selling accessories, supplies and equipment. All must specialize in the repair, and the buying, selling and rebuilding of used cars if they intend to make money as in the past. Possibly extra effort will be required to keep business running as usual owing to conditions in the manufacturing field and difficulty of obtaining material and stocks. There is nothing in the situation to warrant the belief that there is to be any decided let up in the demand for all kinds of lines that are used in repairing or equipping automobiles, as there are over 5,400,000 cars being operated.

Reports from manufacturers emphasize that there are hundreds of articles upon which immediate delivery can be obtained, a fact which the dealer should keep in mind. It is essential that the dealer keep better posted on the supply market than ever before and with this point in mind we have undertaken a trade campaign which will afford all the opportunity of selecting lines of saleable goods that can be secured.

It is no time for rabid retrenchment. If a dealer feels pessimistic to the point that he keeps his stocks on a hand-to-mouth basis he better retire while he is whole as nothing will run him to the ground quicker than such a policy. The man who secures a good line of supplies and equipment this fall and winter, while obtainable, will have the goods to deliver for winter and spring business, which should be marked by a greater demand than in any previous season. All factors in the situation point to this condition. With few new cars to be delivered everyone of the 5,400,000 owners will of necessity purchase more accessories, supplies and equipment. Those who have very old cars in order to run them another year will have much repair and replacement work to do, while the millions of owners who have each year purchased a new car will spend a considerable amount on their machines to put them in first class shape. A condition indicated by their custom in the past of buying a new vehicle each season.

In the descriptions given where no mention is made of the maker's ability to deliver goods, it is to be assumed that the same situation would exist under normal conditions and that the article is procurable subject to the same transportation and manufacturing considerations as would obtain in these times.

It will be impossible to list and describe all articles in any one issue of the Automobile Journal and the Accessory and Garage Journal, as there will be close to 3000. To classify all goods we will publish in the October issues of these two magazines and in the months of November, December, January, February and March, complete descriptive matter of all lines that are or will be produced. The articles listed will be indexed for ready reference. In the November issues, fall and early winter goods will be sues, fall and early winter goods will be dealt with. Owing to present publishing conditions extra copies cannot be supplied, so it will be advisable to place subscription orders at once.

Rain-Sno Clear View Windshield Cloth, as its name suggests, affords a means of providing against an obstructed view through the windshield from rain, sleet, snow or fog, and this result is secured at a minimum expense and with least possible effort, as an occasional wiping of the glass with the cloth prevents water in any form from adhering to the surface.

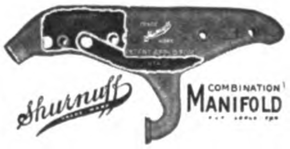
The use of this cloth for keeping a clear view through the windshield in stormy weather presents many advantages. It does not require constant handling to accomplish the desired result and when not required can be stored in a small pocket in the door or in under the seat. It is guaranteed to give continuous and effective use for one year and is a cheap and simple means of preventing the many accidents that motor cars figure in owing to the driver's view being obscured by rain, snow or moisture on the windshield.

RAIN-SNO
CLEAR VIEW
WINDSHIELD GLOTH

Manufactured by the Suffolk Manufacturing Co., Inc., Dept. D, 69 Long Wharf, Boston, Mass. By mail, postpaid, 50c each.

The Shurnuff Combination Manifold is a one-piece casting combining the intake and exhaust, being cast integral and so constructed as to allow the exhausted or fired gases to pass over the intake in such a manner that the incoming vapor is properly mixed and dried before entering the cylinders, thus insuring a smoother running and more powerful engine at all speeds and a saving of fuel.

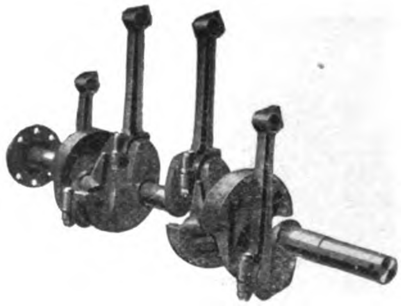
Its efficiency in thoroughly vaporizing the mixture makes it possible to utilize the low grade gasolines, that have more heat units than the higher grades, which fact is responsible for the increased power, faster pick up and the ease in starting that results from the use of the combination manifold.



It is designed for the Ford engine and solves the problem that has been confronting Ford owners for some time of how to properly utilize the low grade fuels they are now obliged to buy and obtain greater efficiency from their motors.

Manufactured by the Shurnuff Manufacturing Co., St. Louis, Mo. Distibuted by the Zinke Co., Chicago, Ill. Retail price complete, $9; west of Rockies, $10; in Canada, $12.50.

Dunn's Counterbalances for all Ford cars are designed to balance the crankshaft, eliminating the vibration and giving the same smooth, even running motor that are obtainable only in the very high priced cars. The unbalanced revolving weights traveling at a high speed set up wracking forces in an engine that will ultimately be responsible for ruinous wear in many of its parts, while all the time deteriorating the effect of the power impulses. It has long been a known and established fact that counterbalancing any engine that derives its power from a reciprocal stroke will increase its power and efficiency and greatly lengthen its service life.



Dunn's Counterbalances.

The counterbalances are installed by removing the plate on the bottom of the crank case and with the use of a wrench only, no grinding, drilling or machining being necessary.

Manufactured by the Dunn Counterbalance Co., 115 North 15th St., Clarinda, Ia. Price, $12 per set.

The Shaler Roadlighter, in the opinion of motorists who have used it, does not owe its value so much to the fact of its compliance with anti-glare laws as to the fact that with it they can drive without annoyance or danger from the blinding headlamps they always meet on night trips.

Roadlighters take the waste portion of the light, which ordinarily shoots upward above the headlights, and concentrates it on the edge of the road. The effect is the same as using a spotlight on each side of the car in addition to the usual penetrating beam from the head lamps. With this sort of illumination one can see the road right through the glare of headlights he meets and turn out to pass with the same confidence he would in the day time.

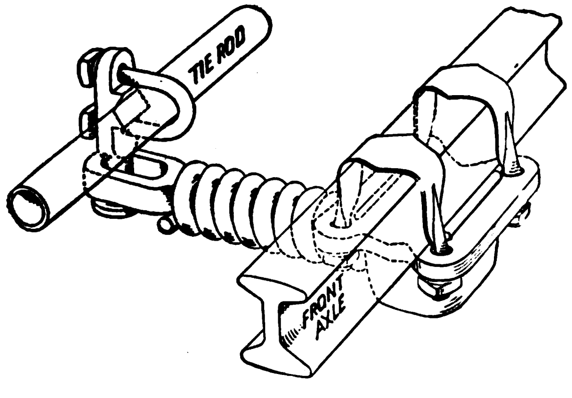
While the Roadlighter is approved in every state where approval is required, it is not merely a means of complying with the law, but a protection against drivers who ignore the law. No glare is produced even when the largest bulbs are used. The road is illuminated from fence to fence. The distance light is intensified. Fog penetration is secured without discoloration of light.

SHALER
ROADLIGHTER

Recent tests under the New York state law permit Roadlighter to be used with maximum candlepower bulbs permitted by the law, which are of 24 candlepower. Texas tests, where no maximum is specified by law, permit 40 candlepower bulbs to be used with the Roadlighter, and these lamps are the largest commercially available. Orders for Shaler Roadlighters are being filled promptly.

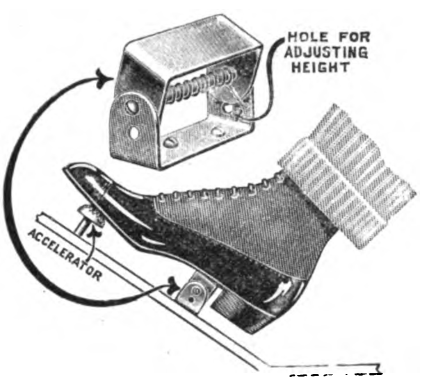
Manufactured by the C. A. Shaler Co., Waupun, Wis. Prices, Ford size and smaller, $2.75; larger sizes, $3.50.

The D. & O. Anti-Wobbler is a simple, substantial device for preventing the wiggle and jiggle of the Ford steering wheels. It is easily attached to the center of the front axle in a few minutes and the makers claim it to eliminate driving accidents by holding the front wheels true at all times, thus preventing loss of control.



The G. H. Dyer Co., Cambridge, Mass. Write for price and literature.

The New York Foot Supporter was designed to overcome the great amount of leg and muscle strain in operating the accelerator over rough roads, for every jar or jolt is transmitted through the foot and has its effect upon the action of the engine. As the illustration shows it is attached to the footboard in such a manner as to support the weight of the foot upon an adjustable hinge. Two screws secure the device and once installed the position is always correct.



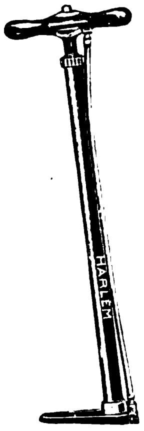
Manufactured by New York Coil Co., 338 Pearl St., New York City, N. Y. Write for prices.

Dutch Brand "2 in 1" Tread Filler, is a liquid rubber that is injected in tread cuts, bruises or gashes in tires, and which closes them against the action of the elements and to oil, sand and other foreign matter that tend to enlarge the wounds and cause the fabric to rot. It requires but a moment to apply the filler and no cement is needed. It meets the demand of the times for tire conservation by supplying a means of quickly and easily repairing all cuts and injuries immediately, and permitting them to give service throughout their allotted mileage. It is put up in 1x6 inch collapsible tubes, packed one dozen in a box—the container being designed for counter display.

2 IN 1
READ FILL
TCH BRA

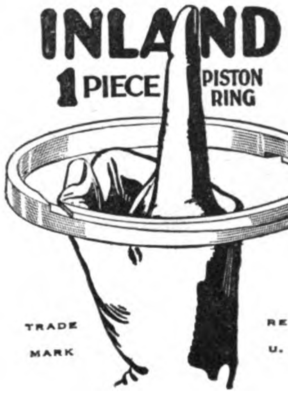
Manufactured by Van Cleef Bros., Chicago, Ill. Price, 35 cents a tube.

The Harlem Single Action Tire Pump is designed to offer a natural pumping angle and has a sufficiently large base to prevent it from sinking into the sand or mud when operated. The cylinder is made of a heavy gauge 1¼x22 steel tube and this is screwed into a special collapsible cast base. The plunger rod is extra heavy and is fitted with a selected Kip cup at the lower end. The handle is reinforced and extra large. It is finished in black enamel and nickel.



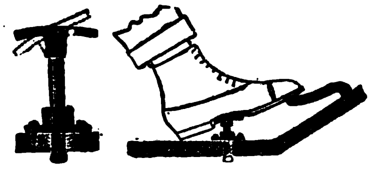
Manufactured by the Judd & Leland Manufacturing Co., Clifton Springs, N. Y. Price, $2.75.

The Inland Piston Ring is of the concentric type with the cut extending half way around its circumference, which feature equalizes the radial pressure of the ring against the cylinder wall and at the same time prevents any leakage through the cut in the ring. The cut is made at a very acute angle with the circumference and is entirely closed. There is a small slot in the ring at each end of the cut, located diametrically opposite to each other. With this arrangement only a small amount of gas will enter the slot and pass under the ring, but it cannot escape from the ring groove, because at the point where the bottom slot on the ring is located the piston bears firmly against the cylinder wall and every possible passage is closed to the gas. This patented design of the Inland gives it greater strength and wearing qualities and it is claimed that it will wear into a cylinder in a few revolutions of the motor, showing perfect contact and equal wear at all points. Deliveries can be made promptly and in any quantity.



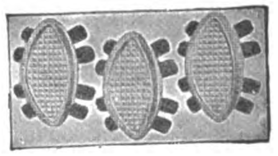
Manufactured by the Inland Machine Works, St. Louis, Mo. Prices $1.25 to $1.75 on sizes from 2 inches to 5⅞ inches. On six-inch sizes and over list will be furnished upon request.

The Adjustable Accelerator Foot Rest fastens to the floor or footboard of the car and serves as a support for the foot in the operation of the throttle or accelerator pedal, enabling the operator to maintain constant and even pressure. It serves as a guide to the foot in reaching for the accelerator pedal and incidentally relieves the strain on the muscles of the leg which otherwise would have to be kept under tension.



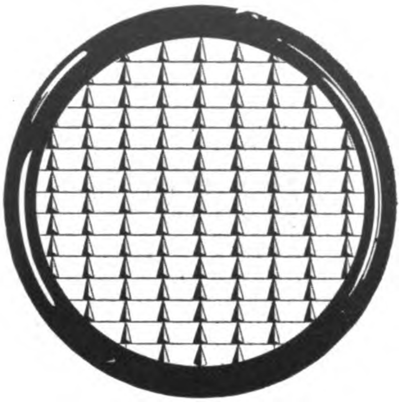
Manufactured by the Rich Manufacturing Co., 1777 Broadway, New York City. Price $1.50.

Rico Ford Pedal Covers are made of live pliable rubber and are attached to a metal plate having eight prongs, which can be bent around the pedal with the fingers. This fastening is rigid and will not work loose. No tools are required in fitting the covers as there are no holes to be drilled or bolts used. These covers fit all Ford models.



Manufactured by the Rich Manufacturing Co., 1777 Broadway, New York City. Price, per set of three, 75 cents.

The Sun Ray-Lens has a lens which is divided into a great number of small square prisms, designed to throw approximately 90 per cent. of the light directly ahead of the car, in a line parallel with the road surface. These square prisms are separated from each other by small triangles, through which the balance of the light given by the bulb is refracted to the sides of the machine, at an angle of about 168 degrees, affording light for determining the ditch lines. Immediate delivery is assured.



Manufactured by the Prismolite Co, 74 East Gay St., Columbus, O. Write for prices and literature.

The Woodworth Clear Light Lens for automobile head lights is a prism lens especially designed to prevent glare without absorbing light, but by directing its rays where they are most required. The upper half of the lens is so designed that it throws the light to the sides of the road and the lower half is designed to throw the rays down on the road itself. The lens is made in all of the commonly used sizes. Dealers or jobbers can obtain prompt shipments.

Manufactured by Woodworth Manufacturing Corporation of Niagara Falls, N. Y.

The Crew Levick Fractor consists of a heavy half tone of glass, which is cast with wedge shaped projections around the circumference. The glass is mounted upon a ring which fits over the bulb. Due to the pecular construction of the glass and its refractive powr, the Fractor bends all the rays of light so that they are reflected to the roadway where needed.

Made by the Crew Levick Co., Philadelphia, Pa. Motor Parts Co., Philadelphia, national sales agents. Write for literature and prices.

TOP
CORNING CONAPHORE
PATENTS ISSUED & PENDING

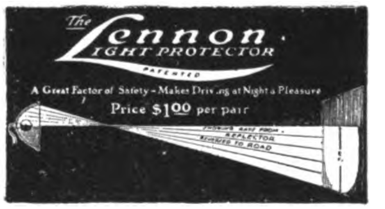
The Conaphore is a typical headlight glass of the first class and is obtainable in sizes ranging from five to 11½ inches in diameter, and in either plain or Noviol glass. Across the front of this glass are a series of horizontal prisms which refract the glaring beams and direct rays of light downward. A second series of squares, arranged in semi-triangular formation and extending over the center of the glass, are designed to reflect light towards the sides of the road. All of these prismatic panes are cast into the glass and being on the inside do not collect the road dirt and dust. The front is perfectly smooth. The Noviol glass being of yellowish tinge, absorbs the glaring rays of blue and violet and permit only the nonglaring rays to pass.

Marketed by Conaphore Sales Division, Edward A. Cassidy Co., Madison Ave. and 40th St., New York.

Retail Price List (per pair)	Noviol Glass	Clear Glass
5 to 6⅞ inches incl.	$2.40	$1.60
7 to 8½ inches incl.	3.50	2.50
8⅝ to 10 inches incl.	4.50	3.00
10⅛ to 11½ inches incl.	6.00	4.00

Prices 25 cents more per pair west of Rocky Mountains. Sizes vary by steps of ⅛-inch above 6½-inch size.

The Lennon Light, patent rights to which have been affirmed by the United States Court of Appeals, is a flexible brass reflector, heavily plated, which throws the beams of light on the road, and at an approved height from the ground, stops the glare which is prohibited by statute in many states. It is made in two sizes and will fit any headlight. The protectors are light in weight and simple in construction, having no extra springs or parts to become broken. They are attached without removing the bulb from the headlight, the operation being to place the eyelet of the protector over the tip of the bulb and pressing it into position, where it is held firmly. Those rays of light that ordinarily would be thrown outward and upward into the eyes of oncoming motorists are reversed and directed downward. Prompt deliveries are assured.



The Lennon Light Protector

PATENTED

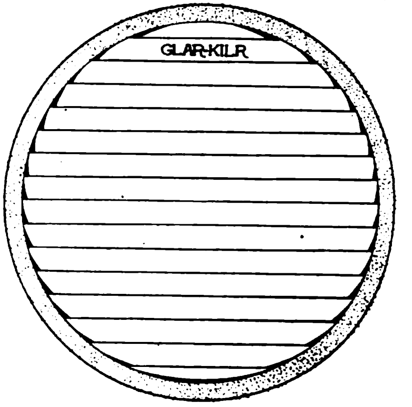
A Great Factor of Safety—Makes Driving at Night a Pleasure

Price $1.00 per pair

SHOWING RAYS FROM REFLECTOR LOWERED TO ROAD

Manufactured by J. H. Faw, Inc., 37 Warren St., New York, N. Y. Retail price $1 per pair.

The Zorger Glar-Kilr Lens is composed of sectional cylinders one-half inch in width, with the axis horizontal. These sections are adjusted so that the rays cross or come to a focus three inches in front of the reflector. This gives a one-half inch spread every three inches or a two-inch spread every foot. The sectional cylinders are made so that the light does not attain an altitude of more than 42 inches in 200 feet. At 200 feet the spread from each one-half inch section of the glaring half of the reflector is 400 inches, 90 per cent. of which is stated to be below horizontal is diluted by diffusion approximately 800 times, not nearly sufficient to dazzle an approaching driver. The maker states that by using the cylinder he gets the same diffusion as any diffusing lens and in addition gets refraction or bending down of the rays. This lens bends rays of light down and diffuses them along the road where they are needed. The range of lighting from it is from 300 to 500 feet in front of the car, and a wide side light is thrown, showing clearly the side of the road. Orders can be filled promptly and in any quantity.



Manufactured by the Zorger Lens Co., Inc., Champaign, Ill. Prices, 7½ to 9 inches inclusive, $2; 9¼ to 10½ inches inclusive, $2.50; amber, 50c extra.

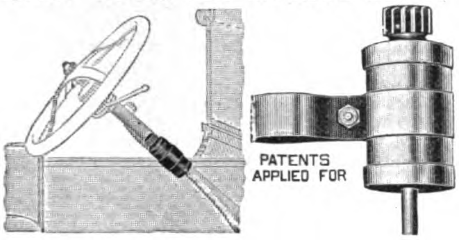
The Macbeth Lens has its front surface divided into five horizontal prisms, each of which is inclined at an angle that was determined by experiment. This arrangement is said to direct the light below the horizontal, lighting the path of the car at the greatest distance possible, without having the glare of the lamps blind the driver of an approaching machine. A concave surface at the back of the lens results in the deflection of the rays to the sides. To eliminate any chance for rays to extend upward, the lens is fitted with a green visor, making the whole device ornamental.

Manufactured by the Macbeth-Evans Glass Co., Pittsburgh, Pa. Write for prices and literature.

The Nu-Ra-Lens is an attractive headlight glass, which is designed to prevent direct ray action with the attendant glare. This type of lens is mosaic in effect, with its surface broken into many small prisms, which deflect the light, but do not dim it. In this way all of the light from the bulb is thrown in front of the machine, but not in the form of direct rays. The manufacturers claim that though a perfectly white and clear light is projected, it possesses none of the objectional glare common to clear glass lenses.

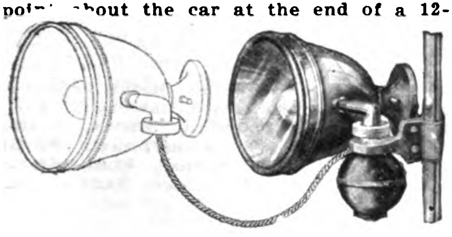
Manufactured by the Nu-Ra-Lens Co., 74 East Gay St., Columbus, O. Prices from $2 to $3 according to size.

The Lite-A-Ford is an intensifying and regulating device for lighting systems of Ford cars with a dimming feature. By a series of coils the current from the engine is strengthened at low engine speed, while the same coils have a reverse action on high speed, causing the current to be retarded. This regulates and equalizes the lights to almost an even density at all speeds. At any time the lights may be dimmed to any degree that it is desired by turning the knobs on the dimmer, which is attached to the steering column. Prompt delivery.



Manufactured by Hastings Manufacturing Co., Hastings, Mich. Price $2.50.

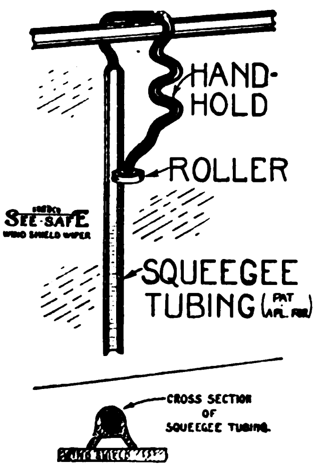
The Autorecelite is a spotlight, a searchlight, a flashlight and a trouble light all in one. It costs no more than the ordinary spotlight and it is moveable to any point about the car at the end of a 12-foot extension cord, that when not in use is wound on an automatic reel.



Manufactured by the Anderson Electric Specialty Co., 118-124 Clinton St., Chicago, Ill. No. 3140, model B-6 (six inch), price with rear view mirror, $8; No. 3141, model B-7 (seven inch), with rear view mirror, $9; without mirror deduct 50 cents.

The Automatic Extension Reel is nine inches in diameter by two inches in width, and is equipped with 25 feet of reinforced cord. The head is provided with a swivel joint, enabling one to carry the lamp in any direction from the reel, and an automatic lock, so that stop may be had at any point. It combines the advantages of taking the light exactly where it is wanted, eliminating the necessity of dragging an extension cord over the floors, where the insulation is soon worn off and fire risks increased through short circuiting. The makers claim that so perfect is the reel's insulation and connections that they have withstood a test of an A. C. potential of 1250 volts—only 250 being required for lamp service. Orders filled promptly.

The Cincinnati Specialty Manufacturing Co., Inc., Cincinnati, O. Write for prices and literature.

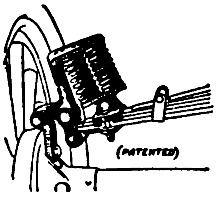

HAND-HOLD
ROLLER
SEE-SAFE WIND SHIELD WIPER
SQUEEGEE TUBING (PAT APL. FOR)
CROSS SECTION OF SQUEEGEE TUBING.

The See-Safe Windshield Wiper is so arranged that it may be drawn across the windshield, cleaning a rectangular space, or pivoted upon the top and swung in a half circle, serving to clear a space or cleaning the rain, moisture or sleet away from the windshield for its full width. The distinctive feature of the wiper is gained through the use of a special squeegee tubing. The effect of this tubing is that two flexible and parallel wiping surfaces are in contact with the glass, held closely against it by the spring action of the heavy rod on which it is mounted, and which passes over the top of the windshield and forms a hand-hold on the inside of the car.

Jobbers and dealers can secure a supply of the wipers during the entire fall and winter.

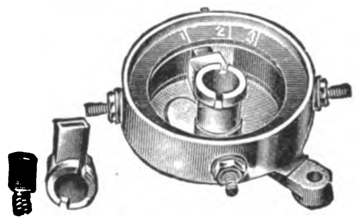
Manufactured by the Stadeker Metal Specialty Co., 358 W. Madison St., Chicago, Ill. Write for prices and literature.

Champion Shock Absorbers are built exclusively for Ford cars and are designed to absorb the jar and recoil from the springs. The pivot seat of the two coil springs act as a bearing for the main springs and allow free oscillation of the working parts. The car rides on the springs and off the springs, equalizing each motion in balance, making the action of one spring compensate for that of the other. Immediate deliveries.



The Champion Shock Absorber Sales Co., Indianapolis, Ind. Two for the rear wheels, $8; set of four, $15.

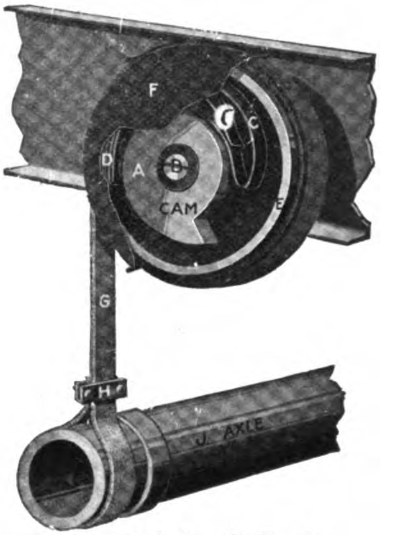
The "Hyway" Oilless Timer is developed on the system of brush contact used on all electric generators. The brush is special machined of hardened brass, slightly curved to fit the ring. It can be quickly and easily renewed when worn and is the only part necessary to be changed. This timer does not need to be oiled and gives a 50 per cent. longer contact, insuring a fat spark, which makes for better ignition. Deliveries can be made as wanted.



Manufactured by Staff & Eckhouse, 1432 S. Michigan Ave., Chicago, Ill. Price $1.25.

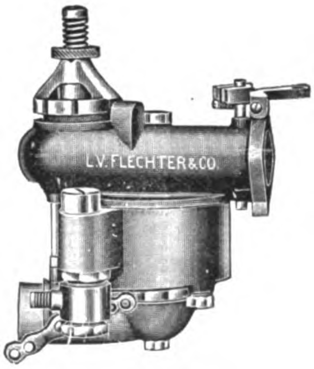
The Velvet Recoil Deadener, marketed by the makers of the Velvet Shock Absorbers is designed to restrain and soften the recoil of the springs.

As will be seen by reference to the illustration the cam A is fastened stationary on the pivot bolt B, while the drum revolves on the bolt B. The spring C is fastened to the inside of the drum and when the car goes upward the drum revolves on the pivot B and the spring travels upward on cam A, gradually stopping the upthrow of the car. A spring on the opposite side of the device winds back the drum and the spring C immediately slides down on the cam A as the body of the car returns to normal position, and takes up the slack in the strap. Deliveries can be obtained on a reasonable amount of Velvet Recoil Deadeners for large cars and Ford cars, also on Velvet Shock Absorbers for large cars.



Manufactured by the John W. Blackledge Manufacturing Co., 341 East Ohio St., Chicago, Ill. Write for prices, giving name of car.

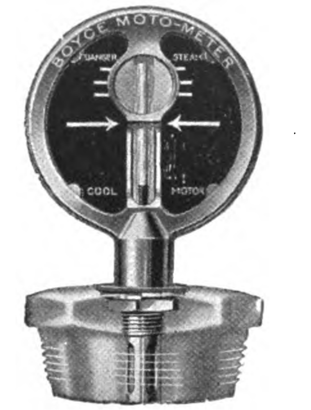
The Flechter Carburetor's correct principles of vaporization and air mixing have been combined with simplicity of construction to a degree that insures unusual fuel economy with reliability of operation. Complicated adjustments that can only be properly set by experts have been eliminated entirely. In this carburetor a "fixed" nozzle or spray is employed. The orifice of this jet is calculated for the size of the carburetor and the type of engine on which it is employed, and it is unalterable, the only adjustments necessary being those regulating the air supply. The air adjustments act directly on the amount of air admitted and are of the simplest form. They are placed on top of the carburetor and will lock at any point for which they are set.



Both the low and high speeds are plainly marked so that they can be turned to the proper direction. Deliveries can be made in any quantity.

Manufactured by L. V. Flechter & Co., 192-200 Jackson Ave., Long Island City, N. Y. Write for prices and literature.

The Moto-Meter is now being made in a special type for the owners of Ford cars, as they are likely to be just as ambitious as an owner of a much bigger machine to have their equipment complete, and, therefore, it comes to pass that makers of accessories of almost every kind have offered models especially adapted to the needs of Ford owners. And not to be left behind the makers of the Moto-Meter have added to their line a special Ford model, which is sold complete with a nickel plated radiator cap. The Ford Motor-Meter differs in no wise, so far as principle and operation are concerned, from other models It indicates by means of a column of colored fluid, plainly visible in the middle of a disk, the temperature inside the radiator, so that any trouble which tends to increase engine temperature at once betrays itself by pushing the column upward. It is well known that most engine troubles make themselves manifest in the form of heat.

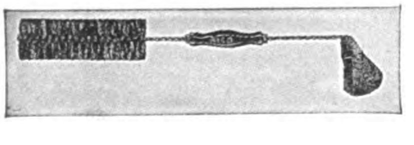


Manufactured by the Boyce Moto-Meter Co., Inc., of Long Island City, N. Y. The price of the new instrument, including the radiator cap, is $2.75. The Standard model costs $10, the Overland $10, the Junior $5 and the Midget $2.50.

Micro Piston Rings are made in two parts and designed to eliminate piston compression leakage. The outer ring seals the opening in the inner ring, and it is said that an equal expansion against the cylinder wall in all directions, produces perfect contact at every part. The makers can meet the demands of the trade and make prompt deliveries.

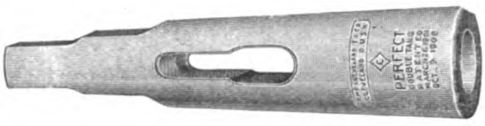
Manufactured by Micro Piston Ring Co., Inc., 110 Nassau St., New York. Prices upon application.

Rico Auto Cleaning Brushes, which line includes a wire wheel brush, wheel and hub brush and engine brush, are made of real China bristle, and are designed and shaped to meet the exact needs required in thoroughly cleaning a car with the least trouble.



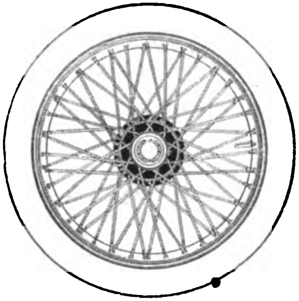
Manufactured by the Rich Manufacturing Co., 1777 Broadway, New York City. Prices, wire wheel accelerator brush, $1; wheel and hub brush, $2; engine brush, 75 cents.

Perfection Double-Tang Sockets meet the demands of the time for conservation of steel, products and labor, as through their use any taper shank tool with a broken tang can be quickly and permanently reclaimed. When the tang of a tool breaks the workman steps to a grindstone and within several minutes has ground a new one, which is 25 to 60 per cent. stronger than the original. This tang is slipped into the socket and as any of the "P. D. T." sockets will nest into a similar socket of the next larger size, any desired length of tang can be obtained. These sockets will also hold taper shank tools so that the tang will not twist off; can't get out of order, as there are no loose parts; fit any spindle with a regular taper hole.



Manufactured by the Cleveland Twist Drill Co., 9 N. Jefferson St. Chicago, Ill. Write for prices and literature.

The House Type Wire Wheels for Fords are less liable to collapse under the shocks of violent collision or skipping blows than the wooden wheels. Each spoke will stand a strain of 3200 pounds. There are 54 spokes in a single wheel. A set consists of five wheels, four inner hubs, four hub caps, one dust cover for spare wheel and two wrenches, one for the hub caps, another for the spoke nipples. These wheels will stand up and keep going under all road conditions. The inner hub has 10 tapered serrations that fit into and grip the corrugations inside the hub shell. The mechanical locking latch is inside the hub cap and is released by a special wrench, but locks itself automatically to the inner hub.



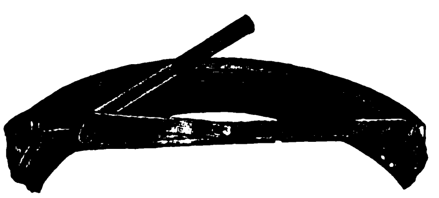
Manufactured by the Wire Wheel Corporation of America. Factories: Buffalo, N. Y., and Springfield, Mass. Service department headquarters, New York City, N. Y. Direct factory branches and service stations in New York, Philadelphia, Chicago, Detroit, Los Angeles and San Francisco. Set of 5 wheels $65. In black, white or red enamel.

Brown Automatic Oiling and Grease Bolts are used extensively by automobile manufacturers who turn out a high class product. The automatic oiling bolt, while designed primarily for use as a spring shackle bolt, is adaptable to all kinds of mechanisms needing continuous feed for internal lubrication. Lubrication is effected by means of a reservoir wick or felt, positively attached to a threaded cap plug and one or more feed or filter wicks. When in position the reservoir is under slight compression that forces all surfaces of the felt against the interior of the bolt, the feed or filter wicks resting against the main reservoir and carrying oil to the bearing surfaces by capillary attraction. The bolts are made from cold drawn bar stock, heat treated and ground and are made in sizes of from ½x3 inches to 1x6 inches.

THE BROWN CO. SYRACUSE, N.Y.
PAT'D

Manufactured by the Brown Co., Syracuse, N. Y. Write for prices and literature.

The G. L. T. Push and Pull Rim Tool is unlike all others in manner of operation and construction. The makers claim no pinching of the fingers or torn clothing, breaking tools or hammering rims out of shape in an effort to remove or replace rims from or to tires. The sliding or adjusting bar that must move to and fro travels in an E shaped heavily ribbed channel. There are no loose hooks, all parts firm and rugged. The slot in the connecting link allows adjusting bar to move backwards, allowing tool inside for unlocking rim, pushing joint apart and pushing rim and joint to place, also allowing bar to move forward for attaching hooks to outside of rim for pulling or contracting rim for removal of tire. It requires but a few seconds for the entire operation and the tool is very substantial, of all steel construction, durable, simple and easy to operate.



The tool is made for and adjustable to 30, 31, 32, 33, 34, 35 and 36-inch demountable split rims.

Jobbers and wholesalers can obtain prompt deliveries.

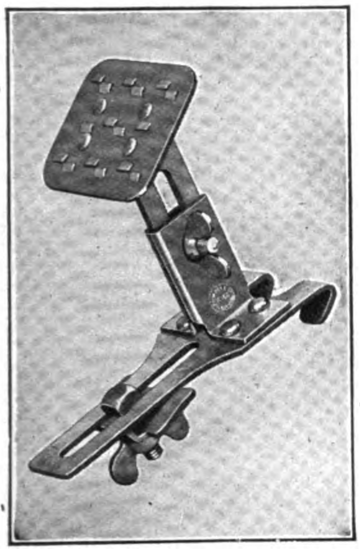
Manufactured by the Metal Products Manufacturing Co., 2416 University Ave., S. E., Minneapolis, Minn. Prices, plain, $3.50; japaned, $3.75; anti-rust, $3.85; white nickel, $3.95; bronze, $3.95, $4.25; oxidized, $4.50; polish nickel, $4.75.

Spoke Tite is a liquid preparation which tightens loose spokes and stops body squeaks. It is said to be uninjurious to painted or varnished surfaces and when applied causes the wood to swell and resume its normal proportions. The can is furnished with a handy spout and upon signs of looseness in the wheels a few drops of Spoke Tite are squirted into the crevices formed by the drying up of the wood. The wheels may be left in place for the treatment and the action of the liquid is rapid. Prompt deliveries are assured.

SPOKE TITE
TIGHTENS LOOSE WHEELS
THE WOODTITE LABORATO

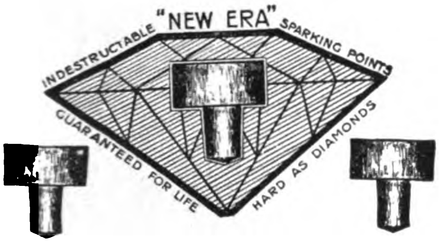
Represented by Charlie Foster, 243 Columbus Ave., Boston, Mass. The price per can is $1.50, enough for four wheels. Distributed by Asch & Co., 16-24 W. 61st St., New York City, and Gray, Heath Co., 1440 Michigan Blvd., Chicago.

Rico Universal Extension Pedal fits every type of automobile brake and clutch pedal and makes it possible for anyone to accommodate their reach to any driving position desired. It is easily and quickly attached and when in position is absolutely rigid.



Manufactured by the Rch Manufacturing Co., 1777 Broadway, New York City. Price, per pair, $4; with rubber cushions, $5.

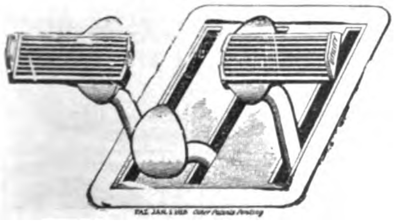
New Era Indestructible Sparking Contact Points are successfully used on all ignition systems except Bosch and replace worn vibrator points, or points in magnetos. They are made from an alloy of materials which the makers claim are harder than platinum. These points, the makers say, are indestructible and they back this claim with a broad guarantee of full replacement at any time, no matter what the reason.



No. 1, 9 Ga. wire, $\frac{13}{64}$" deep. Shank $\frac{1}{16}$" long....$1.00
No. 2, 12 Ga. wire, $\frac{7}{64}$" deep. Shank $\frac{1}{16}$" long...$0.60
No. 3, 9 Ga. wire, $\frac{5}{64}$" deep. Shank $\frac{1}{16}$" long....$0.75
No. 4, 10 Ga. wire, $\frac{13}{64}$" deep. Shank $\frac{1}{8}$" long....$1.00

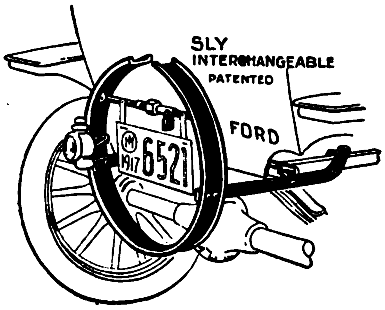
Manufactured by the New Era Spring and Specialty Co., 1177 Hamilton Ave., Grand Rapids, Mich. Prices from 60 cents to $1, according to sizes. Dealers, 50%.

Utility Sure Grip Pedals for Fords are made of pressed steel finished in black enamel and are equipped with heavy pads of rubber edged with metal. They are easily and instantly attached without the use of drilling tools, the tightening of a nut being all that is necessary to hold them securely in place.



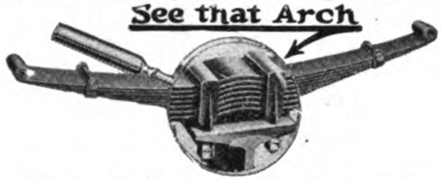
Manufactured by the Hill Pump Valve Co., Archer Ave. and Canal Sts., Chicago, Ill. Price, $1.25 per pair.

The Sly Interchangeable Tire Holder is designed for both Ford and Chevrolet cars. It resembles a quick detachable rim and is bolted to the rear of the car. When the tire is in place an expanding device is turned, locking the tire upon the rim or holder, and can be used with or without demountable rims. A padlock prevents the loosening of the expansion nut and prevents removal by an unauthorized person. On the holder are provided places for a number plate and a tail lamp.



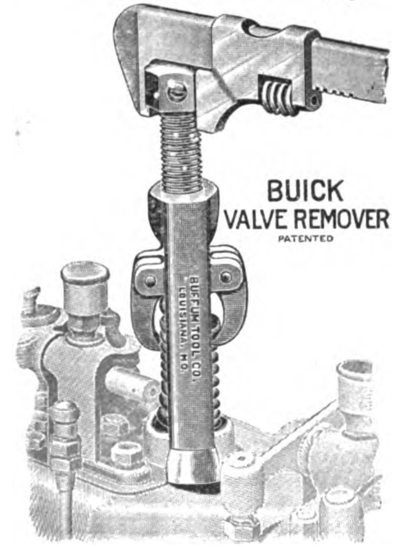
Manufactured by New Era Spring and Specialty Co., 1177 Hamilton Ave., Grand Rapids, Mich. Price, $5. Special terms to jobbers.

Titanic Springs are strengthened by a reinforced patented arch and attached to a clamp entirely outside the spring. These springs, the makers claim, are guaranteed forever against center breakage, and for one year against breakage at all. Quick service is claimed by the manufacturers who keep a large stock of ready-to-ship springs for practically every make of standard cars. Distributing stations are established in all large cities throughout the country.



Manufactured by the Tuthill Spring Co., 760 Polk St., Chicago, Ill. Write for prices and literature.

The Buffum Buick Valve Remover is quick, sure and safe, obviating the danger of bending washers, valve stems and valve springs or breaking the valve cage. It lifts the valve straight up with a strong, steady pull and fits Buick engines of all models since 1912. It is light and compact and occupies no more space than an ordinary wrench, being easily carried in the tool box. They are sold by practically all jobbers and dealers in automobile accessories.

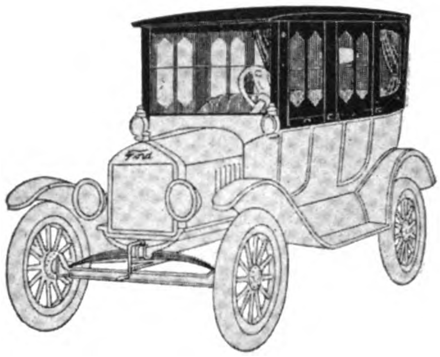


Manufactured by the Buffum Tool Co., Louisiana, Mo. Price, $2.

The Cozy Top for Ford cars embodies the features of the "Springfield" permanent top construction. It affords all the comforts and protection provided by the coupe, sedan and limousine types of body, and it also greatly improves the appearance of the car.

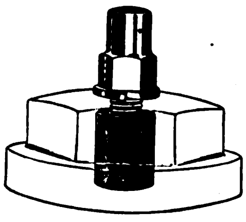
The strong feature of the Cozy Top is the Hunter Automatic Curtain, which is the most ingenious and practical device invented for this purpose. It is always ready and yet never in the way. It is out of sight under the roof when one wants the car open and in one second the car can be closed without leaving the seat..

This top is carefully crated and shipped knocked down, in order to secure the lowest possible freight rates. The Roadster Top is shipped in five pieces, the Touring Top in seven pieces. It requires no special tools to put it on the car—just a hammer, a wrench, a screw driver and about one hour's time. .



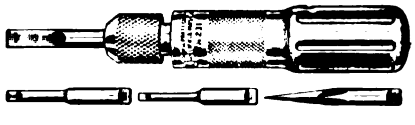
Manufactured by Founts & Hunter Co., Terre Haute, Ind. Write for prices and descriptive literature.

The Imperial Gas Tank Seal meets the call of the times for gasoline economy. Perhaps the greatest waste of gasoline has been the one least thought of—that which evaporates or is jolted through the vent hole of the gasoline tank. Tests at the Armour Institute of Technology and the Associated Engineering Laboratories have proved that this waste of gasoline can be stopped by the Imperial Gas Tank Seal. It works equally well with gravity or vacuum systems and is so simple it cannot get out of order. The valve admits air automatically to replace the gasoline that is drawn out. It is easily installed in a few minutes time, fitting in a hole in the filler cap three-eighths of an inch in diameter.



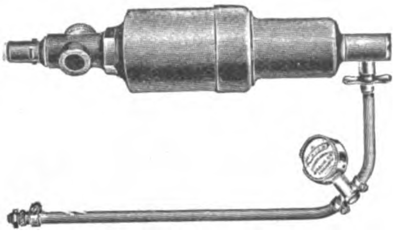
Manufactured by the Imperial Brass Manufacturing Co., 517 S. Racine Ave., Chicago, Ill. Price, $3.

The Goodell-Pratt Pocket Screw Driver No 231 is especially handy around the automobile for the reason that it is always handy in the pocket. The handle is made of steel, nickel plated, so that it will not rust. The chuck may be reversed and fitted into the handle in such a manner that the extreme length of the tool is but 3¼ inches.



Manufactured by the Goodell-Pratt Co., Greenfield, Mass. Price, $1.

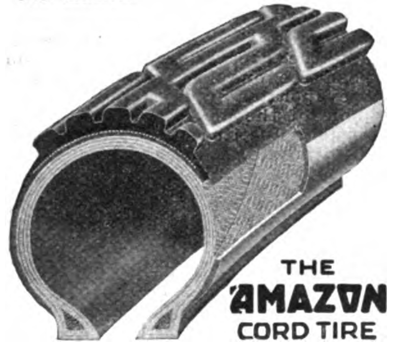
The Brown Impulse Tire Pump offers a simple, effective and ready means of inflating tires on automobiles without the laborious work of operating a hand pump. It can be used with any four-cycle motor and is attached in a moment's time by removing the core of the "B Co.'s" spark plug and putting the pump in its place. The tubing is then connected with the tire valve and the engine is started. The impulses of the engine operates the plunger in the pump and the tire is filled with pure, fresh air to any desired pressure.



The pump is made of the best materials obtainable and is worked up with the same care as is employed in constructing a high class motor. Its construction is rugged and simple making it practically fool proof with ordinary care.

Manufactured by the Brown Co., Syracuse, N. Y. Price, $12.

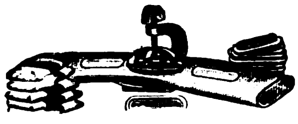
The New Amazon Cord Supertire is of multiple ply construction, each cord is separated from the others by an insulation of rubber. Each cord performs its functions independently. Friction and consequent heat are impossibilities. Its increased air space gives unusual buoyancy and resistance to stone bruises. Almost three-quarters of an inch of sturdy side wall above the bead makes it mechanically impossible for rim cuts to occur the makers claim.



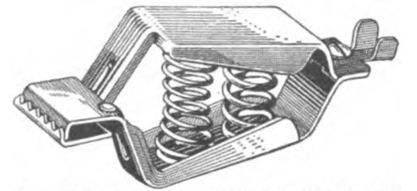
The heavy tread is of the same design and compounding as the regular fabric Amazon Supertire. The new cord has a jet black, ebony tread, with a broad pearl gray side wall.

Manufactured by the Amazon Rubber Co., Akron, O. Prices: 34x4½, $67.25; 36x4½, $70.55; 35x5, $83.60; 37x5, $87.60; 36x6, $109.50.

The Magic Vulcanizer is an ingenious little device that vulcanizes patches on inner tubes in five minutes time, disregarding all weather conditions. The patch is simple and effective. A lighted match applied to the chemically treated cartridge in the top of the tin cap provides the heat units necessary to penetrate the patch and in a few minutes the tube is perfectly vulcanized and ready for instant use. There is no flame, no danger of fire and the strongest wind cannot blow it out. The complete outfit, including clamp and 12 vulcanizing patches take up small space in tool box. Prompt delivery.



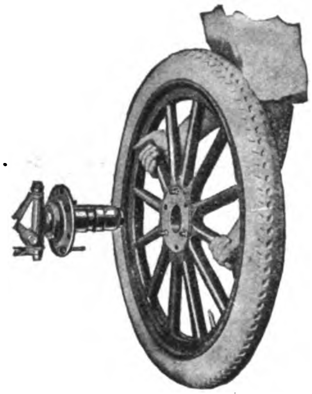
Manufactured by Magic Auto Devices Co., Inc., Lynbrook, N. Y. Price, $2. Extra patches, the dozen, $1.



The Universal Battery Charging Clips are for use as a quick and ready means of connecting storage batteries for charging. They enable one to charge lighting and starter batteries without disconnecting them from the car. Being made with spring jaws fitted with sharp teeth, they bite through dirt and corrosion on terminals and make contact with the metal certain. The trouble caused by loose connections is eliminated with this form of contact. Deliveries from stock for next eight months.

Manufactured by R. S. Mueller & Co., 424 High Ave., Cleveland, O. Write for prices.

Ford Demountable Wheels and Carrier are, the makers claim, a wonderful improvement over demountable rims. The tire change is easily and quickly made by the simple removal of three nuts and without the soiling of hands or clothing. This wheel has less weight than demountable rims and a better balance, as most of the weight is centred at the hub instead of the rim. The outfit includes an extra spare Ford wheel and an artillery type carrier, which device adds materially to the appearance of the car and is instantly available when wanted. Prompt delivery.

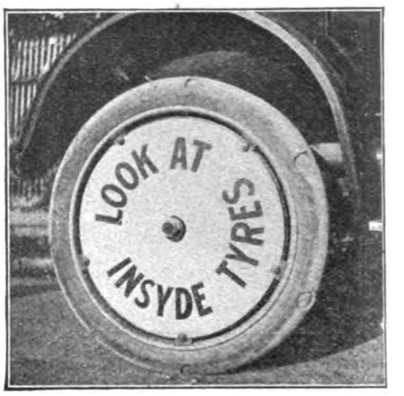


Manufactured by the J. P. Gorman Co.. Inc., 382 Canal St., New York City, N. Y. Price, $15. Write for literature.

The Allen Tire Case has a patented water shed feature which the manufacturers claim make it absolutely water proof. The highest quality enamel duck is used. Its strong canvas backing and non-peeling coating make it the best possible material for the purpose. Style "1" is a regular stock cover in plain black enameled duck which harmonizes with any car. This style is also furnished in any solid color at $1.50 additional. Style "2" is made of enameled duck or fabric leather with the body of the case to match the color of the car and the tread strips matching the trimming or running gear—or vice versa to order only. Style "3" is the latest in case styles, made in fabric leather or enameled duck to match colors of car with beading to match the trimming. Prompt delivery.

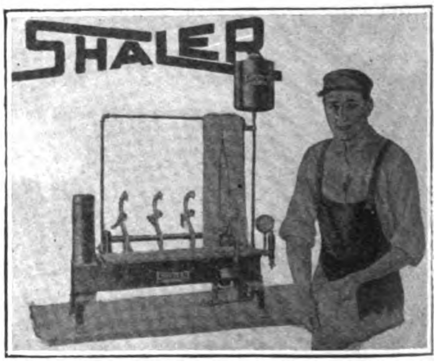
Manufactured by the Allen Auto Specialty Co., 16-24 West Sixty-First St., New York City, N. Y. Prices, $8 and up.

Insyde Tyres are designed to secure additional mileage from tire casings, even those which have worn to a point where further use with the ordinary inner tube is impractical. They are made of heavy tough fabric, vulcanized together over tire molds so that they exactly fit the shoe. The outside is coated with rubber, which eventually vulcanizes itself to the casing and prevents slipping. The inside is treated in such a manner as to prevent it sticking to the tube. It is claimed that by means of an Insyde Tyre the air pressure strain is removed from the casing, thus leaving it free to carry the weight of the car alone. Prompt deliveries.



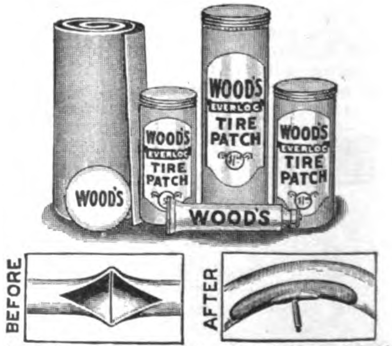
Manufactured by American Accessories Co., 1700 Blue Rock St., Cincinnati, O. Prices upon request.

The Shaler Tube Vulcanizer repairs four tubes at one time and vulcanizes perfectly any size or shape of puncture or cut up to two feet in length. It is easy to operate and requires no watching or regulating, for it has automatic heat control. It takes up very little room and can be placed on a work bench or moved about at will. Furnished with either a gas or gasoline burner or both. Prompt delivery.



Manufactured by the C. A. Shaler Co., 252 Fourth St., Waupun, Wis. Type "L-40," $35.

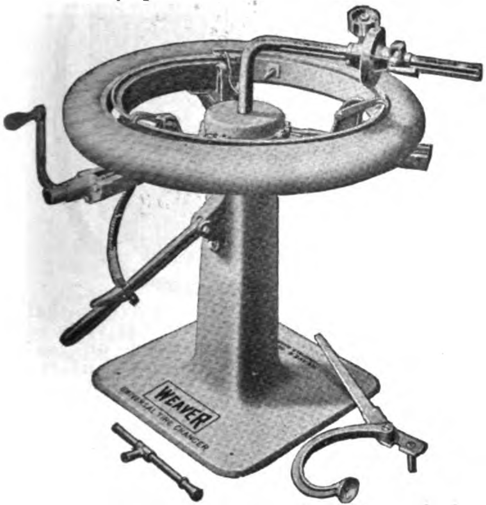
Wood's "Everloc" makes a permanent repair on the smallest puncture or largest blow out on tubes without vulcanizing. The patch comes rolled in container, with tube of cement complete, and the makers claim a permanent job on any puncture from a nail hole to a cut or blow



out 17 inches in length, which can be applied in five minutes. Orders in any quantity filled promptly.

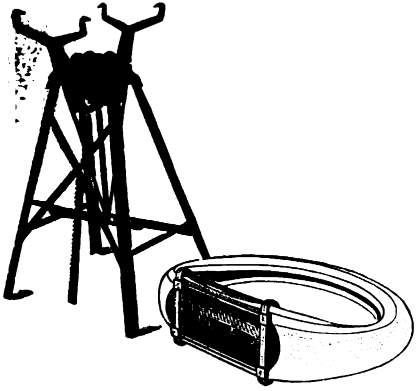
Manufactured by W. C. Wood Co., 74 Western Ave., Minneapolis, Minn. The $1.50 patch is made in sheets 6x18 inches, $1 patch 3½x18 inches, 50 cent patch 2x15 inches, and can be cut to any size desired. Large sheets will repair 100 one inch cuts, or 250 nail punctures.

The Weaver Universal Tire Changer is designed for the rapid changing or mounting of tires. It reduces to a minimum the time for changing quick detachable rim tires, split rim mountings or clincher tires. The changing operation is entirely mechanical and the device is so arranged that little effort is required. The manufacturers claim that there is no damage to tire hazard present since all the pressure is brought upon the tire by means of roller contact. Orders filled immediately.



Manufactured by Weaver Manufacturing Co., Springfield, Ill. Write for literature and prices.

The Weaver Tire Spreader is a device for inspecting the interior of casings, which operation is always necessary in repairing every puncture, blow out or other damage to either tube or casing. By means of a quick acting foot lever the casing is spread to its limit, thus exposing the interior for convenient and ef ficient inspection. It will be noted fron the illustration that the convex plat which forms the table of the tire spreader is equipped with hooks, which afte the casing is spread by means of the jaws can be applied to the bead at each corner of the plate, thus holding the tire permanently spread and with a solid backing. The casing with the plate of the tire can then be lifted off of the spreader and carried to the buffing wheel and the break in the casing buffed to the best possible advantage. A nest of rollers, which are designed to protrude through the buffing plate, carry the weight of the tire when it is being revolved on the spreader for inspection. These rollers, however, are suspended on spring tension, which allows them to be pressed down flush with the face of the spreader plate as the force of the jaws is applied to the beads of the casing for spreading. The shipping weight is 60 pounds. Orders filled immediately.

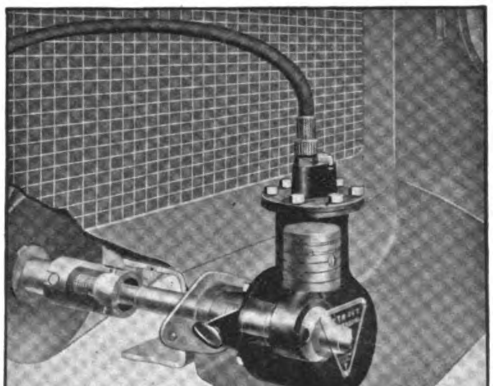


Manufactured by the Weaver Manufacturing Co., Springfield, Ill. Write for prices and literature.

No. 66 Brunner Air Compressor is a portable outfit designed for inflating tires direct, without the aid of a tank or storage system. It is mounted on a substantial cast iron truck having three wheels, and is very durable and convenient to move about. The handle is strongly constructed of convenient height, and has substantial hooks for holding the electric cord and air hose when not in use. It is heavily built with standard No. 26 compressor, having accurately ground cylinders, pistons and piston rings. The motor is specially built, fully enclosed, affording ample power for operation under all conditions, and it may be operated from any light socket. All accessories are included to make the outfit complete and ready to operate when removed from shipping crate. A small chamber is supplied to precipitate the moisture from the air before entering the tire. Prompt deliveries.

Manufactured by the Brunner Manufacturing Co., Utica, N. Y. Write for prices and literature.

The "Detroit" Crankshaft Tire Pump is driven directly from the front end of the engine crankshaft, being attached in exactly the same manner that the hand crank is connected. It is locked in position and held from turning by a clamp or screw and is connected to the end of the engine crankshaft by a short ball joint shaft or coupling, which drives it. Each downward stroke of the piston draws in clean, cool air, and each upward stroke forces it through the tube into the tire. The only attention necessary is a spoonful of hard graphite grease about once a season. It is made as carefully as a little engine. Cylinders, crankshaft and pistons are ground to close limit. Regular engine type high compression piston rings and standard engine type valves are used. Outfit includes 14 foot hose and connection for pocket gauge. Prompt deliveries.



Manufactured by the Detroit Accessories Corporation, Gratiot and Fisher Aves., Detroit, Mich. Price $12. Write for size adapted to your car.

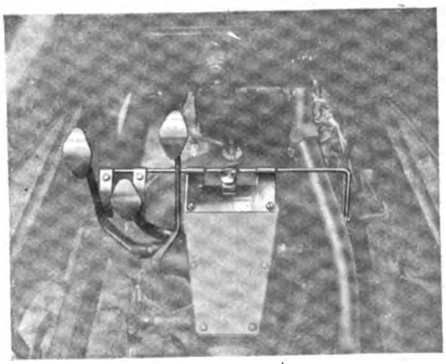
The Standard No. 542 Brunner Air Compressor has a capacity of 2½ cubic feet of free air per minute. It is geared by means of a cloth pinion gear and a cast iron spur gear to a ½ horsepower motor, bolted to a substantial iron base, and is mounted on a 32 gallon welded open hearth flange steel tank tested to 300 pounds. Its height is 34 inches and occupies a floor space of 18 by 36 inches and can be attached to any lighting socket.

Manufactured by the Brunner Manufacturing Co., Utica, N. Y. Price with 110 or 220 volt direct current motor, $195. With one phase 60 cycle 110 or 220 volt A. C. motor, $210. (A. C. motors of other than 60 cycle at additional charge). Write for literature.

The Foster Auto Repair Creeper is mounted on ball bearing, free running castors and is durably finished in baked-on black Japan. Metallic throughout it stands up under severe usage and its advantages over the wooden creeper are evident. The galvanized link spring fabric supports the body comfortably and the head rests upon a cotton filled pillow. The give of the springs allows free movement and an adjustable arm anchors the creeper firmly to floor so workman can exert his full strength. Prompt deliveries.

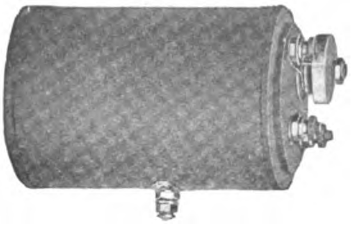
Manufactured by Foster Bros. Manufacturing Co., Utica, N. Y. Price, $4.

The Speederator combines a foot accelerator with an automatic controlled advance and retard for speed changing on the Ford car. It eliminates the necessity of any and all hand operation of the steering post throttle and automatically idles the engine in changing speed. When low or reverse clutches are engaged the engine is supplied with more gas automatically and speeded up. As soon as these clutches are disengaged the gas is automatically cut off, preventing the racing of the engine, and making the change from low to high, which is so difficult for amateurs, an easy matter. In addition tc the automatic feature is provided a foot throttle or accelerator, rendering driving convenient and identical with high priced car methods of control. Prompt deliveries.



Manufactured by the Detroit Starter Co., Detroit, Mich. Price, $4.85.

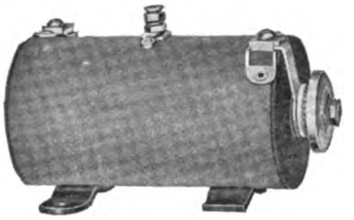
The Automobile Ignition Coil situation has in the past been a serious problem for jobbers, dealers and service stations, owing to the multiplicity of types on the market. Many jobbers and dealers have had to pass up the coil field almost entirely because of the large and varied stock of coils that would be necessary to take care of all requirements.



Jefferson Remy Coil.

The Jefferson Electric Manufacturing Co. of Chicago have recently placed on the market a line of battery replacement coils and fittings which are sufficiently flexible to displace any type of coil on battery equipped cars. The extreme flexibility of Jefferson coils is obtained from several features, which include the fittings, adjustable caps, terminals and mounting arrangements.

With a small stock of Jefferson coils any service station, garage or repair shop will be prepared for any emergency. Heretofore it has been necessary to lay up a car for perhaps several days while a new coil was being obtained. Now, however, any car can be placed in service within a few moments. It is only necessary to remove the old coil and connect the Jefferson.



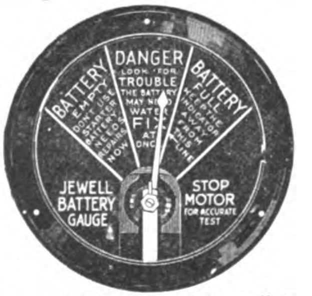
Jefferson Delco Coil.

Starting conditions require a coil that will produce a hot, intense spark when the battery is at the lowest ebb. Jefferson coils are guaranteed to take care of this extreme condition.

To aid jobbers, dealers, service stations and garage men the Jefferson Electric Manufacturing Co. have compiled a folder containing complete and authentic data covering all standard battery ignition systems. This folder lists all makes of cars from 1912 to the present date and gives the year, model, type of ignition and style of Jefferson coil to be used for replacement. This folder will be sent free of charge to any dealer, garage, service station or jobber. Deliveries from stock.

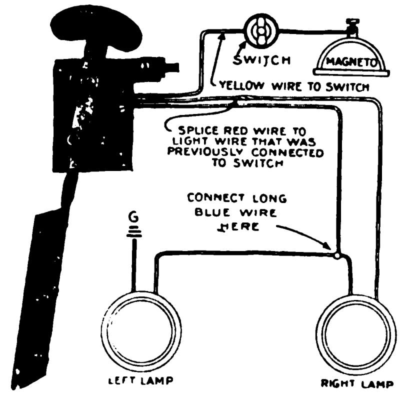
Manufactured by the Jefferson Electric Manufacturing Co., 429 South Green St., Chicago, Ill.

The Jewell Battery Gauge is a finely adjusted volt meter permanently located in the battery circuit and so calibrated that the slightest variation in voltage is immediately indicated. The dial is divided into three parts, marked "Battery Full," "Danger" and "Battery Empty," respectively, with instructions in each of the latter two compartment sections showing what should be done in the event the indicating needle marks these sections. The installation involves only placing of the gauge on the instrument board or any other convenient location and connecting the two binding posts on the back of the gauge to the main terminal of the battery, all of which is done in a few minutes.



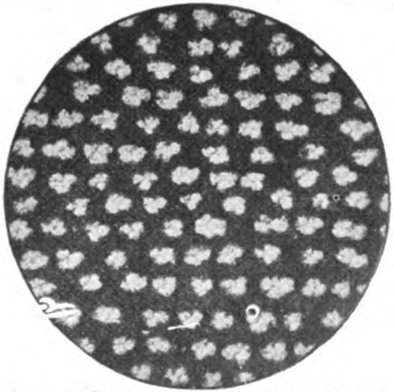
Distributed by the Gray-Heath Co., 1440 South Michigan Ave., Chicago, Ill. Price $6.

New York Automatic Head Light Controller for Ford cars eliminates trouble of varying light given by the car headlights. The Rear Light Controller consists of an arm which is attached by means of a stud to the base of the device. To the lower end of the swinging arm is attached an aluminum disc, which when in position on the engine is about eight inches back of the fan. The base is fitted with three contacts, over which the swinging arm travels. When the engine is started the arm, by spring tension, is brought to the first contact and only the left headlight receives current. The total current from the magneto is sufficient to illumine this single headlight to its full candle power. As the engine speeds up the air current, acting on the swinging arm disc, carries it to the second contact and both bulbs receive current. Should the engine speed increase still further the arm would contact with the third connection and a resistance coil introduced into the circuit, preventing the burning out of the lights from excessive current.


SWITCH
MAGNETO
YELLOW WIRE TO SWITCH
SPLICE RED WIRE TO LIGHT WIRE THAT WAS PREVIOUSLY CONNECTED TO SWITCH
CONNECT LONG BLUE WIRE HERE
G
LEFT LAMP
RIGHT LAMP

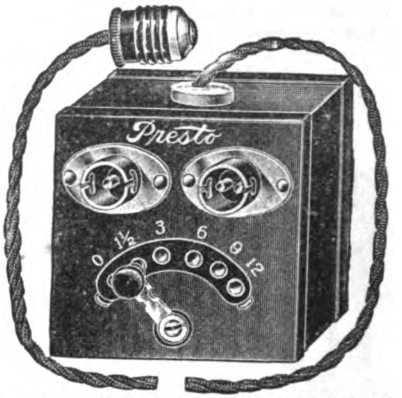
Manufactured by New York Coil Co., 338 Pearl St., New York, N. Y. Price $6 complete with wiring.

The Willard Threaded Rubber Insulation is one of the most important of many marked improvements which the Willard organization has made in the automobile starting and lighting battery. The illustration, which is greatly enlarged, shows a section of the threaded rubber insulation used between the plates of the battery. Each white spot is the end of one of the 196,000 threads which pierce the rubber plate or sheet from front to back. Each one is in reality only 1/32 of an inch in length and of such small diameter that it is not noticeable to the naked eye. The plates are perfectly protected and the solution has free passage by capillary attraction and because of the enormous number of threads the full power of the battery is always available.



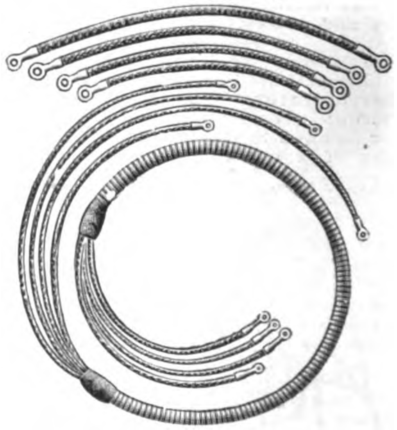
Manufactured by the Willard Storage Battery Co., Cleveland, O. Write for prices and booklet entitled 'The Wick of the Still Better Willard."

The Presto Bulb Tester is designed to test all sizes of automobile bulbs that have an Ediswan base and the dealer when selling a bulb can test it before the purchaser's eyes, thus proving that the bulb is perfect and also that it is of the correct size for installation on that particular car. The switch lever at the front has contact points for 1½, 3, 6, 9 and 12 volt bulbs. It can be attached to any ordinary 110 volt socket and is equipped with seven feet of lamp cord. The device is enclosed in a neat metal case of black enamel with trimmings of nickel plate. Prompt deliveries.



Manufactured by the Metal Specialties Manufacturing Co., 338-52 N. Kedzie St., Chicago, Ill. Write for prices and literature.

Ford Ignition Outfits include a complete set of primary and secondary wiring of the highest grade wire. The cables are cut to correct lengths and finished with soldered terminals or black rubber nipples if so desired. Low tension wires protected with cable insulation are furnished where the wiring is exposed to grease or oil drippings. The wires are in contrasting colors, which make sure of proper replacement.

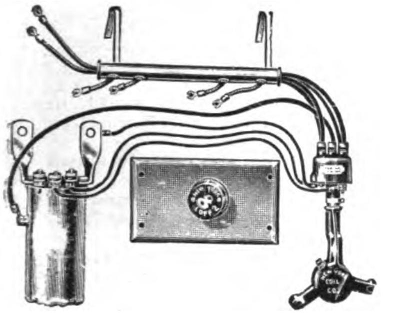


Manufactured by Staff & Eckhouse, 1432 South Michigan Avenue, Chicago, Ill.

Ohio Karbon Killer is a compound which, when mixed with gasoline, eliminates old carbon reposits in the engine and prevents further accumulations according to the claims of the makers. It contains no ether, camphor, acid or other ingredient that would harm the motor or clog up the gasoline feed lines. It comes in condensed form and is used at the rate of one level teaspoonful to five gallons of gasoline. The amount to be used is dissolved in gasoline and then poured into the fuel tank. A can of one pound is enough to treat 480 gallons.

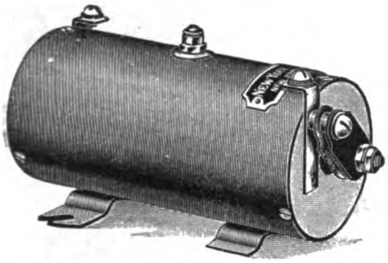
Manufactured by the Ohio Grease Co., P. O. Box 22, Loudonville, O. Price per pound, $1.

The Vibrator-les Coil Ignition System for Ford cars consists of a timer distributor unit, which is designed for mounting on the front of the engine and driven from the present camshaft projection. The distributor unit is similar to the conventional high-tension distributor, while the timer, or breaker box, is so arranged that with every break in the circuit a shower of sparks is produced by the coil, which is mounted on the engine. Current for the system is taken from the Ford magneto, and such is the construction of the breaker box that the "dead" points of generation in the magneto do not effect its working. This system is said to work equally well either on dry cells or storage battery.



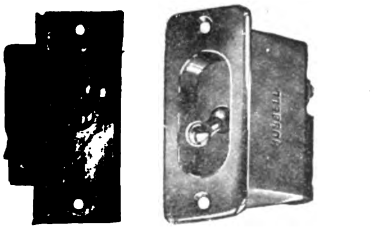
Manufactured by New York Coil Co., 338 Pearl St, New York, N. Y. Price complete, $22.

The New York Transformer Coil is interchangeable with any supplied on all modern battery ignition systems. They produce a hot flame at all engine speeds on a minimum amount of battery energy. Operating on very low voltage they mean getting away from starting troubles that have been attributed in many cases to the inability of coils to supply a sufficiently powerful spark at the instant of starting, as at this time the starting motor's drain on the battery is so heavy as to reduce the voltage in many instances to four volts or less. The condenser is of the proper construction to insure long life of contact points in the distributor.



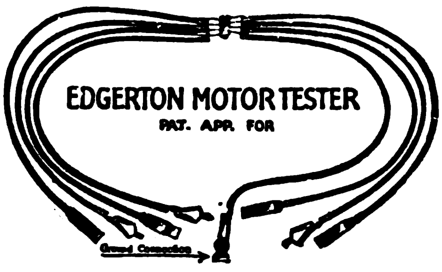
Manufactured by the New York Coil Co., New York, N. Y. List price on all models $9 each.

The Hubbell Toggle Switch is quick to work, slow to wear and drops instantly into place and will quickly break the connection with a flip of the lever. It is easily installed upon the dash and requires no complicated movement of the fingers to send it into action. With the handle up the current is on and with the handle down the current is off, making the switch fool proof. All types are made, meeting the regular standard and special switch requirements. Can meet demands for delivery.



Manufactured by the Harvey Hubbell Co., Inc., Bridgeport, Conn. Write for prices.

The Edgerton Motor Tester is for use in determining if all the cylinders of an engine are working properly and are each furnishing an equal amount of power. It consists of a number of secondary wires which are connected by special easily attached clips with the spark plugs of all but one cylinder. Another wire from the tester is grounded to the engine base, thereby cutting out all but one cylinder. It is then an easy matter to find whether that particular cylinder is running smoothly. By altering the wire arrangement each cylinder may be tested in turn. Jobbers and dealers can obtain prompt deliveries.



Manufactured by R. G. Edgerton & Co., Suffolk, Va. Prices ranging from $2 to $9.50 according to number of cylinders and type of tester.

The B-W Ammeter has a case of drawn brass finished in either bright nickel or black rubberoid. It is supplied in either surface or flush types. The glass is held in place with a special baked cement, which makes it waterproof, and is further reinforced with a wire locking ring, which eliminates any chance of the glass working loose. The movement is said to be practically vibrationless, that is, not affected by engine or rough road jars. It is of the permanent magnet iron vane type and is not affected by short circuits. The scale is of the usual etched type and several different finishes are optional.

20 10 0 10 20
DISCHARGE
CHARGE
AMPERES
B-W MFG. CO
ST LOUIS, MO

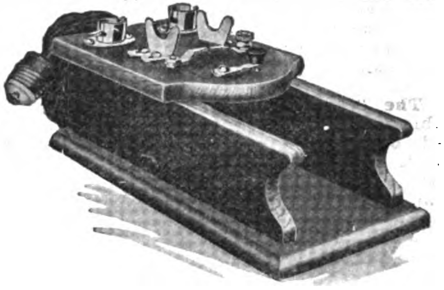
Manufactured by Ballman-Whitten Manufacturing Co., 4060 Forest Park Blvd., St. Louis, Mo. Write for prices.

The B-W Magneto Tester makes it possible to test Ford magnetos without removing the magneto from the engine and it constantly checks up and indicates any trouble. The tester consists of a reactance coil and an alternating current ammeter, all mounted in a neat wooden case. The scale of the tester is calibrated to show the proper strength of Ford magneto upon any model. The tester serves its greatest purpose when the engine is on the bench. It enables one to get the magneto perfect before reassembling the engine in the chassis. This is done by grounding one of the leads of the tester to the engine and holding the other lead to the contact of the coil frame with the fingers. The other hand revolves the flywheel. This can be done fast enough so that the tester will give a steady, accurate reading. Other tests can be made quickly and accurately by running the engine at any moderate speed, without disassembling, and the tester will indicate the exact condition of the magneto.

INSTRUCTIONS
MAGNETO TESTER FOR FORD CARS
B-W Mfg. Co.
ST. LOUIS, MO.
Manufacturers of
AMMETERS COIL TESTERS
MAGNETO TESTERS

Manufactured by the Ballman-Whitten Manufacturing Co., 4060 Forest Park Blvd., St. Louis, Mo. Price, $10. Substantial discount to dealers.

The Jefferson Ford Unit and Combination Tester is designed to facilitate the testing of the Ford coil unit. Speed and accuracy in testing the coils makes the device handy, for in addition to the coil testing device the tester is fitted with equipment for the testing of automobile lamps, regardless of voltage or candle power, spark plugs of any type, electric horns, signals, coils, etc.



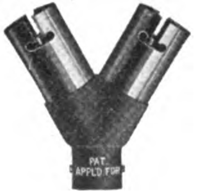
The device is made in two types, the first, No. 28, is designed for connection with the regular alternating current lighting circuit and can be furnished to connect to any commercial voltage or cycle. This voltage is reduced to 12 by the combination tester, which is the minimum voltage generated by the Ford magneto.

The second type, No. 30, is of practically the same type of construction, but designed for operation on a six-volt storage battery or four dry cells.

The top of the unit is fitted with both a single and double contact lamp socket for testing light globes; a flexible spark plug testing rack; an adjustable spark gap and a contact button. Upon the end of the device are mounted two terminals, to which may be connected leads for general circuit testing and trouble finding.

Manufactured by Jefferson Electric Manufacturing Co., 426-430 South Green St., Chicago, Ill. Price for No. 28, $8; for No. 30, $6.

A Double Outlet Y Plug Socket has recently been placed upon the market. Unlike the straight plug socket this plug is made in the Y shape, converting a single outlet into a double socket. By its use the owner converts his single dash lamp for two purposes at the same time, for one side of the plug may be used for spot light and the other side for an inspection lamp, regular dash lamp or cigar lighter. It has a standard Edison type plug connection at one end, which can be plunged into any dash lamp socket and is neat appearing with the exposed parts nickel plated. It is made in double contact, single or double to single contact.



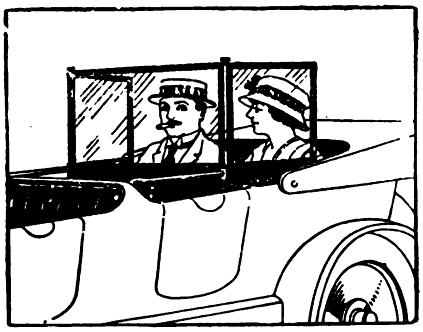
Manufactured by the Metal Specialties Manufacturing Co., Chicago, Ill. Write for prices.

The Dodge King Bolt Wrench meets the long requested demand by repair men for a special wrench on King bolts and it is now manufactured in quantity so that the wrench can sell at the list of $2.50, making the net price to the repair men so small that they cannot afford to be without one of these tools. It is made of the best steel and is light and compact, fitting the hand readily.

DODGE KING BOLT WRENCH
WALDEN-WORCESTER

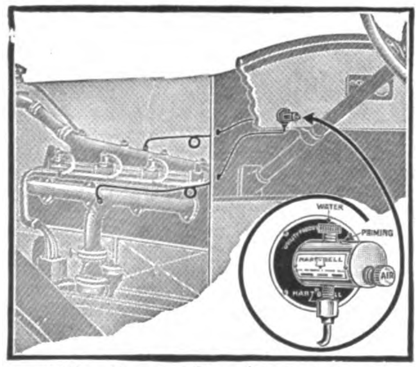
Manufactured by the Walden Worcester Co., Inc., Worcester, Mass. Price, $2.50.

The "J. H." Tonneau Shield is adaptable for use on any car built. It is mounted on a pair of extending steel arms, which are attached to a pair of steel body irons, which in turn fasten securely to the frame of the front seat beneath the upholstery. When once raised a push enables one to open or close the shield and place in whatever position desired, whereupon it is held by the friction locks. The side wings are simply turned to whatever position desired and they lock by friction. Placed at an angle they deflect the wind. When the shield is not in use it folds against the back of the front seat, taking about the same amount of room as would a robe. Orders filled promptly.



Manufactured by the "J. H." Tonneau Shield Co., New York City, N. Y. Price, $60. Dealers' discount, 20 per cent.

The Hart-Bell Carbon Remover, which is easily installed upon the dash or under the hood, conveys a little water in controllable quantities to the intake manifold, where it becomes vaporized and is sucked into the cylinders with the gasoline. It is converted into steam by the heat of the explosion and allowed to act upon the carbon while the engine is running. An added feature of the device is an auxiliary air adjustment, making it possible to introduce a little air when the engine is hot into the intake manifold by merely turning the valve marked "Air," which results in a more complete combustion of gasoline, increased mileage and a smoother operating engine. Prompt deliveries.

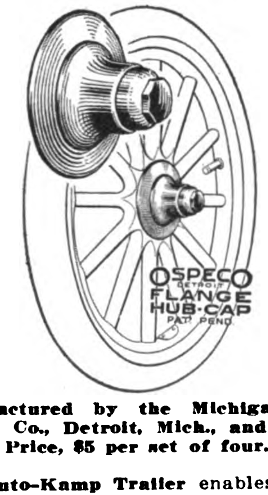


Manufactured by the Hart-Bell Co., Inc., 1926 Broadway, New York City, N. Y. Price, $6. Under the hood type, $6.

The "Safety First" Oil Signal is very simple in construction and is light and exceptionally well finished. There is nothing to get out of order and once it is properly installed it requires no attention. The principle is simple. As soon as the oil in the crank case gets low—within about 20 miles run of the danger point—a contact is formed at a given point, causing a light to flash, which is located on the dash in plain sight of the driver. The light will then burn constantly until the oil supply is replenished, which will automatically break the contact and the light goes out and remains out until the oil again gets low. Prompt deliveries.

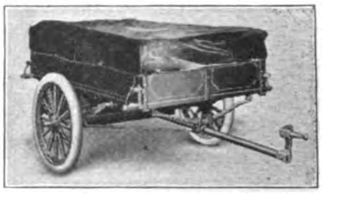
Manufactured by "Go" Motor Speeder Co., Three Rivers, Mich. Price, $4.50.

The Ospeco Flange Hup Cap is designed to replace the original Ford hub cap. They are rugged and distinctive in design and add materially to the appearance of the car. They are easily installed by merely screwing them on just like the old hup caps. Prompt deliveries.



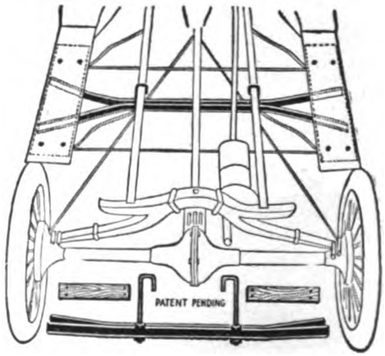
Manufactured by the Michigan Auto Products Co., Detroit, Mich., and Cincinnati, O. Price, $5 per set of four.

The Auto-Kamp Trailer enables one to live out of doors. It is a trailer to be drawn behind the car and when extended is a fully equipped home wherever one happens to be. It is a sleeping tent with two comfortable double beds, with real sagless springs, mattresses and bedding. It also has an ice box, two-burner gasoline stove, electric light outfit and table. The tent is water proof, wind proof and insect proof. It all folds compactly when on the road, under a dust proof, close fitting tarpaulin. It can be set up in seven minutes by one man alone. There are no bolts, nuts or clamps. The beds simply fold over on strong hinges. The tent frame is put in sockets, the bed legs are hinged and the whole is securely braced, being firm and rigid when in place. It attaches by universal socket and follows behind the car at any speed, over any kind of a road easily and silently. Prompt deliveries.

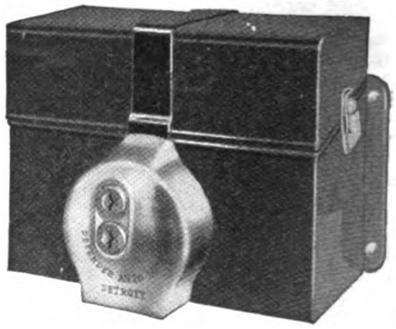


Manufactured by the Auto-Kamp Equipment Co., Inc., Saginaw, Mich. Price complete with full equipment and solid tires, $235. With pneumatic tires, $250.

The Presto Body Brace is designed to support the running boards on the Ford car. It is made up of two pieces of channel iron placed back to back, securely riveted together with a spacer between them. The channel irons are separated slightly by the spacer, which allows room for two bolts, which are formed into a hook at the top. These are hooked over the main frame work of the Ford chassis and the ends of the channel iron project out on either side under the running boards. Two extra pieces of board are furnished, which fit underneath the running boards for a distance of about 36 inches and when the nuts on the bolts which hook over the frame are tightened this body brace forms a perfect support for the running boards and binds the frame work and body of car together, thus stopping vibration. Prompt deliveries.



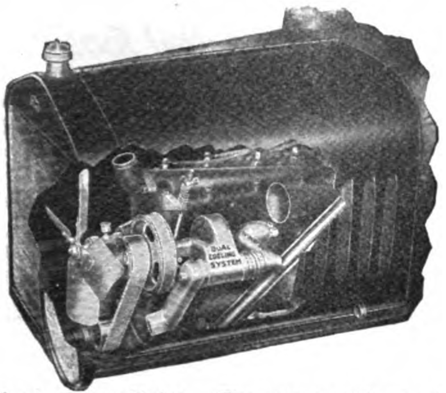
Manufactured by the Metal Specialties Manufacturing Co., Chicago, Ill. Price, $3.50.



The Defender Thief Proof Ignition Lock for Fords has been patented in the United States and Canada, all claims for its special features being covered, which include the grounding device, the method for locking the casing over the Ford switch, as well as the idea if locking the coil box. The makers are in a position to make prompt deliveries and will continue to do so throughout the fall and winter.

Manufactured by the Defender Auto Lock Co., Marquette Bldg., Detroit, Mich. Write for prices and literature.

Dual Cooling System for Ford Cars consists of a centrifugal force circulating pump with a capacity that will not allow the water to remain in the cylinder block long enough to come to the boiling point, also a large ball bearing fan that supplies enough air to carry away the heat from the radiator. The pump swings on the water line, which gives a proper adjustment to both the fan and the pump belt at all times. There being separate adjustments for each, which are automatically taken up by the spring belt tighteners, and when further belt adjustments are necessary this can be done without the use of a wrench. Prompt deliveries.

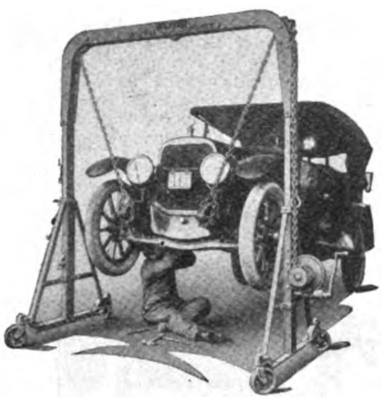


Manufactured by the Dual Manufacturing Co., 1202 Hennepin Ave., Minneapolis, Minn. Price, $25.

Union Tool Chests enable the mechanic to keep his tools for instant use in having them always at hand filed according to their adaptability to the job on hand. The cabinet is made in various types and the handle is covered with heavy, genuine leather and has heavy steel wire through the center. Loops secured by rivets carry the weight and cover the ends of the handle which is attached to the chest with heavy cotter pins, absolutely preventing its being pulled out of the loops. The frame is thoroughly seasoned, properly kiln dried selected stock, quartered white oak in quartered oak chests. Plain oak in G chests and basswood for covered chests. The drawer sides are of cherry or maple. The fronts of oak and mahogany. The bottoms of three-ply veneer. The hardware is extra heavy, with polished nickel finish. The lock of Sargent & Greenleaf with 100 key changes, of solid brass and bronze, with two milled slot, flat, rust proof keys. Fair deliveries.

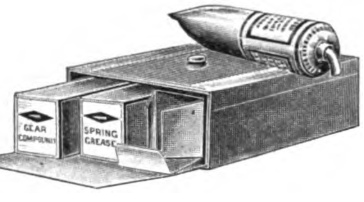
Manufactured by the Union Tool Chest Works, Rochester, N. Y. Price, $17.50.

The Weaver Auto Hoist has a much greater range of application than the ordinary block and tackle. It can be run into position over a car in a crowded shop without requiring more than 12 to 14 inches space on either side of the car. The frame is so designed as to permit the height of the arch to be increased approximately 12 inches, allowing the uprights to be raised to the desired height in the braces on either side by means of the chain hoist. The increased height enables the hoist to raise the rear end of a limousine or a touring car with the top up, for removing the rear system. One chain of the hoist may be carried over the pulley in the center of the frame for performing work which can be handled to better advantage by a single suspension than by a double suspension from each corner of the frame, as shown in the illustration. The hoisting mechanism is operated by worm drive, which is absolutely safe and positive. There are no gears or ratchets to slip or break and allow the load to fall.



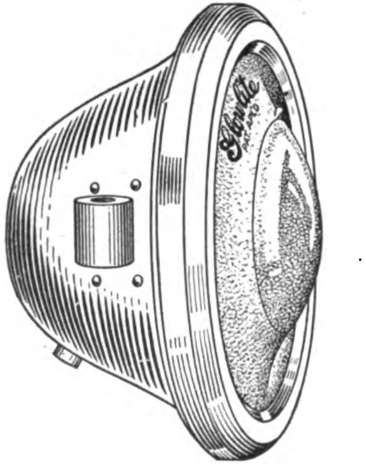
Manufactured by the Weaver Manufacturing Co., Springfield, Ill. Write for prices and literature.

Grease-in-Tubes is the clean, handy, ready way to use grease. It is economical, as there is no waste—fresh grease always being ready and usable to the last drop. This grease is put up in three tubes in a carton called "The Lincoln Highway Kit" and consists of one tube of cup grease, one tube of spring grease and one tube of gear compound. This grease is of the best grades obtainable and is always ready for instant use without the usual soiling of hands and clothing in inserting it.



Manufactured by the Crew Levick Co., 111 N. Broad St., Philadelphia, Pa. Price, $1 a kit; 35 cents a tube.

The Glowlite Lenses, the manufacturers claim, are the highest scientific application of the safety idea in automobile headlighting. There is no concentration of light in spots or patches upon the road bed traversed. The distribution of light to the sides of the car, even almost directly at right angles to the plane of the lamps, is decidedly more uniform and more powerful than is the usual type of headlight. This is an important advantage, since it permits the driver to see ruts, rocks, ditches, etc., very clearly, as well as enabling him to read direction signs and mile posts along the road.



Manufactured by the Glowlite Co., Columbus, O. Price $2 per pair, any size.

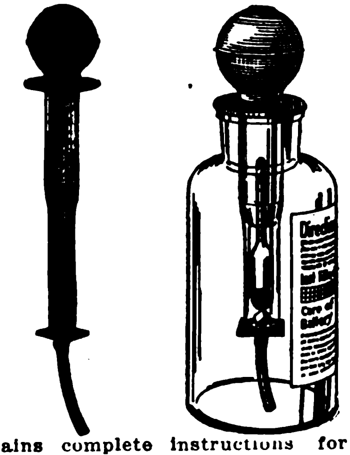
Pontoklene is a product of the well known Du Pont Chemical Works and is used for removing grease, oil or tar from the motor car, while at the same time restoring the original polish of the car without rubbing. It is also used for cleaning engines and is superior to gasoline for that purpose. In cleaning the automobile Pontoklene will save much time and labor, particularly where many cars are handled, as it will remove tar as readily as water washes away dust without injuring the finish of the body.

DU PONT
PONTOKLENE

Distributed by E. I. Du Pont De Nemours & Co., Wilmington, Del. Prices: ¼ gallon, $1; ½ gallon, $1.50.

The WorkRite Hydrometer Outfit consists of a high grade hydrometer fitted in a glass jar for holding distilled water or pure rain water. It can readily be seen that this outfit would be very handy for use around either a public or private garage, for filling and testing storage batteries.

The WorkRite hydrometer is fitted with rubber collars at each end, which prevent the glass from striking and breaking if accidentally dropped. The large collar at top acts as a cover for the water jar and the square collar at bottom prevents the instrument from rolling if placed on an uneven surface. The label on bottle contains numerous blank spaces for filling in the date when last tested or filled. It also contains complete instructions for the care of the battery in both winter and summer. Immediate deliveries.

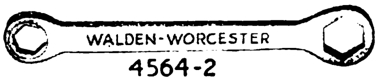


Manufactured by the WorkRite Manufacturing Co., Cleveland, O. Prices for the combination outfit is $1.50, and for the hydrometer only $1.

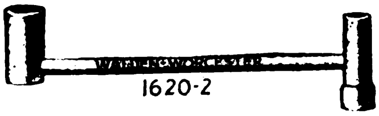
Waxit is a cream white emulsion for cleaning and polishing all varnished and enameled highly finished surfaces. It is not a varnish solvent and if spilled on varnished surfaces can be wiped up without injury to same. Contains no injurious or inflammable ingredients and will not injure the hands. It is applied to an automobile with a piece of clean cloth or cotton waste just as one would apply soap and water, after which it is carefully wiped off with a piece of dry cheese cloth, leaving a smooth, dry polish, to which the dust will not adhere.

Manufactured by the Waxit Manufacturing Co., 2424-26-28 University Ave., S. E., Minneapolis, Minn.

Walden-Worcester Special Wrenches for Ford Cars have been tried out by garage repair men and Ford owners. They have been found to be most efficient tools—especially useful in getting at nuts and bolts inaccessible to ordinary open-end or monkey wrenches.

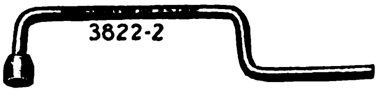


The ratchet wrench, No. 4564-2 with an 11/16 inch hexagonal opening, was particularly designed for use on transmission bands (brake and reverse), Ford car. The opposite end, 15/16 inch, is for use on Champion X spark plugs and slow speed connecting lock. This is a combination tool which has been found to be most serviceable. The price of this tool is $1.20.

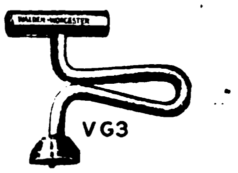


The Triple Socket Wrench, No. 1620-2, is really three wrenches in one. The socket sizes are ⅝ inch and 1¼ inch hexagon and 9/16 inch square. This is our new improved "Tomahawk" wrench.

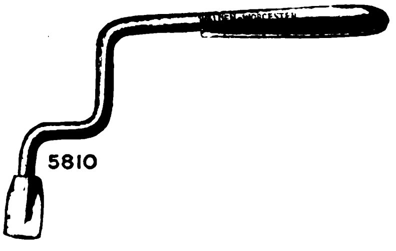
The double-end socket has been designed particularly for clearance around cylinder head bolts and other places. Used on cylinder head, brake and reverse support, cylinder inlet and outlet connections, differential case, drive shaft roller bearing, front spring tie, spring, run board fender, rear axle housing, crank case (lower cover), controller shaft bracket and 9/16 square socket on main bearing bolt head. The price of this tool is 75 cents.



The special type wire handle wrench, No. 3822-2, is used on flywheel cap screws. Ford car; heretofore considered an impossible place for a socket wrench. It is an ugly place for a socket wrench. It is an ugly place made easily accessible. The socket size is 11/16 inch hexagon. It sells for 50 cents.



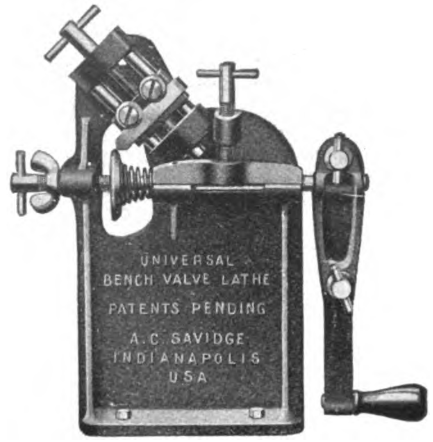
The all-steel wire handle valve grinder No. VG3 has a ⅝ inch bar handle, which swivels on a cone bearing. The socket is shaped to fit valve heads and is fitted with hardened steel pins. The valve grinder sells for 50 cents.

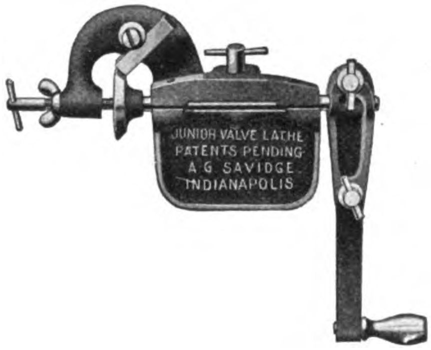


Wrench No. 5810 is a specially designed connecting rod wrench. It fits all connecting rods on a Ford car, including the fourth connection. This is the original design, the first wrench made to reach the fourth connection without removing the engine from the car. It sells for 50 cents.

Manufactured by the Walden-Worcester, Inc., Worcester, Mass. Write for catalogue.

The Savidge Universal Bench Valve Lathe is designed to reduce the time of fitting valves to a minimum. The tool consists essentially of a base to clamp in a vise on which is a stem way for the valve, and mounted above this is a high speed steel cutter that may be set for any desired angle. The valve is placed in the way with a spring to maintain its position, and a handle is clamped to the stem end and turned. The cutter and the valve are adjusted by feed screws, and any cut can be had with surprising little labor, while the work is absolutely accurate. The tool can be used for any valve with 30 or 45 degrees angle faces up to 2½ inches diameter and 7/16 inch stems.

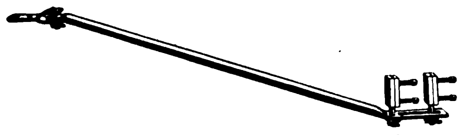




The Savidge Junior Valve Lathe is intended for use with valves for Ford chassis, having 5/16 inch stems and cast iron valve heads, up to 1¾ inches diameter and with faces 45 degrees angle. Statement is made that this can be operated while held in the hand or clamped in a vise. The operation is practically the same as the Universal tool, but the cutter is fixed and is not fed for the cut. The adjustments are equally accurate and the work is quite as well done. The tool is a size that it may be carried in the kit of the truck or car.

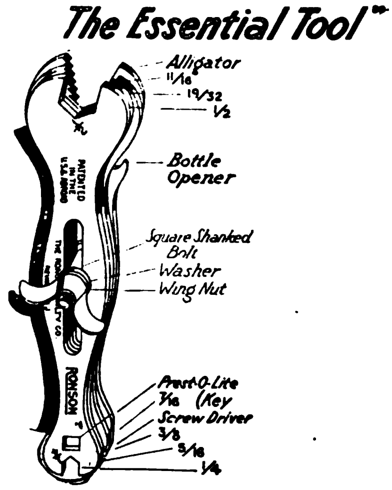
Manufactured by A. C. Savidge, Indianapolis, Ind. Prices, Universal model, $10; Junior model, $5; extra cutters, $1 each.

The Dyer Towing Device is a simple arrangement for fastening to the front axle of a Ford car and making possible the towing of the car by another without the aid of a second driver. The device is designed for attachment to the axle and is fitted with a clamp, which is fastened to the steering spindle connecting rod. The other end of the device is fastened to the towing car. When a corner is turned the rear car is automatically steered by the device. Prompt deliveries can be made in large quantities.



Manufactured by the G. H. Dyer Co., Cambridge, Mass. Write for prices and literature.

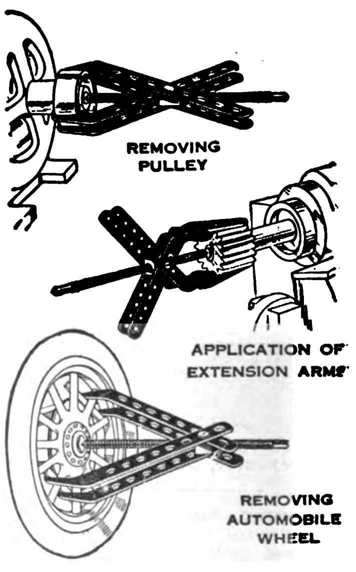
The Ronson Wrench combines eight size wrenches in one. A twist of the lock nut releases the size wanted. In addition to these wrenches, a screw driver, a bottle opener and an alligator jaw wrench are contained in the combination. The whole outfit weighs but half a pound, is six inches long and ½ inch thick and may be carried in the pocket. Prompt deliveries.



Manufactured by the Art Metal Works, 7 Mulberry St., Newark, N. J. Price, $6.60 dozen. Gross lots (minimum), $66 gross net.

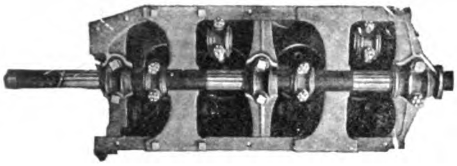
The "Little Giant" Gear and Wheel Puller is made with four puller arms of drop forged steel and has an adjustment range from nothing to 13 inches when "extension arms" are used. The puller arms are so arranged that with the draw screw in place there are four pulling points, so distributed that there is no need for a holding or steadying bar. The puller prongs are designed to give maximum strength, yet to occupy little room. For this reason they may be used for removing timing gears or other gears where room is limited.

This device is handy in removing inside work and for inside pulls. For removing small pulleys or gears a pair of extension arms may be used. These arms are provided with a locking arrangement for fastening to the pulling arms and provide for two pulling points rather than the four as in the primal attachment. Prompt deliveries are assured.



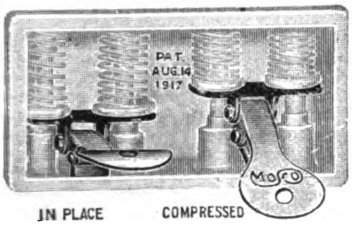
Manufactured by Premier Electric Co., 4032 Ravenswood Ave., Chicago, Ill. Price for "Little Giant," $10. Extension arms, $1 extra.

The Dyer Bearing Reamer greatly facilitates the work of fitting main and connecting rod bearings of a Ford engine. The tool leaves a smooth, glassy finish to the bearing surface. The reamer has leads of .004 of an inch at the end of each fluke and is held in line by two adjustable bearings, which are bolted to the crank case while it is being used. It can be seen from the illustration that by the employment of this tool the lining up of all the bearings is fully assured. Deliveries in one week up to 12 reamers.



Manufactured by the G. H. Dyer Co., Cambridge, Mass. Write for catalogue of tools and prices.

The Mosco Valve Spring Compressor for Fords eliminates what is usually a troublesome operation, viz., the compressing and removing of valve springs. By using this simple device springs can remain in position until the grinding of the valve is completed. The compressor is placed in position as shown in the left of cut, pushing it back against the cylinder wall, making sure that the tongue which hangs down is over the edge and resting in the channel, then the handle is pushed down as far as it will go. This operation compresses two valve springs at one time and permits removal of the pins. If the pins are crosswise the valve is turned until they are in the proper position to pass through the slots in compressor. After the valves are ground the operation is reversed. The compressor is made of heavy pressed steel. Immediate deliveries from stock.



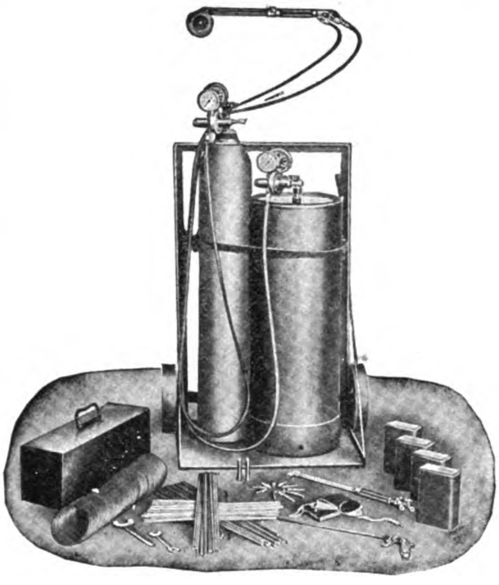
Manufactured by the Motor Specialties Co., Waltham, Mass. Price, 50c.

The Socket Wrench Set No. 489, herewith illustrated, consists of a ratchet socket wrench with a ¾-inch hexagon socket (which may be obtained separately) and four extra sockets fitting it. These extra sockets have ⅝, 11/16, 13/16 and ⅞-inch hexagon openings. The ratchet socket wrench has a seven-inch black enameled iron handle and a very strong ratchet that can be used for either right or left hand work. The lignumvitae head runs on ball bearings. Each set is packed in a strong and attractive hard wood box.

GOODELL - PRATT COMPANY
SOCKET WRENCH SET
NO. 489
SOCKETS 5/8 11/16 3/4 13/16 7/8 INCH

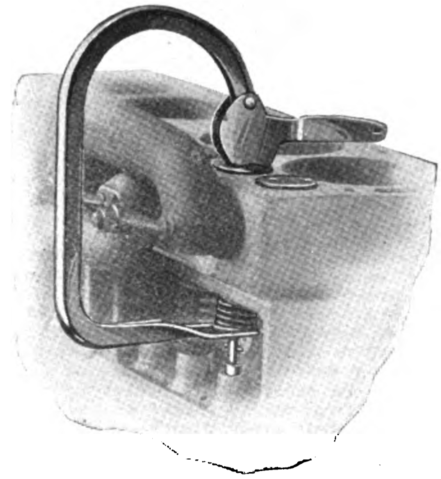
Manufactured by Goodell-Pratt Co., Greenfield, Mass. Price of set, $5. Price of socket wrench No 419 with ¾-inch hexagon socket, $2.50.

The Dyer Welding, Cutting and Carbon Removing Outfit has two utilities included, that of welding and cutting by the oxy-acetylene process and of removing carbon from the combustion chambers and cylinders of engines. With this apparatus the garage man and repair man can quickly and satisfactorily do all kinds of brazing, welding of broken parts, frame straightening and many other things requiring the use of a welding outfit. The material used in this outfit is of the highest grade. The regulators are strongly built and accurate. The Dyer Co. uses the United States Gauge Co.'s gauges, and the hose used is of extra heavy five-ply fabric. The outfit includes a truck made of the best grade of boiler plate strongly welded. The torches are simple in construction and easily handled, being of light design and highly efficient. The welding torches cannot back-fire under any circumstances and can be operated to a low enough acetylene pressure to practically empty the gas cylinders. Prompt deliveries on any of the apparatus or complete outfits.



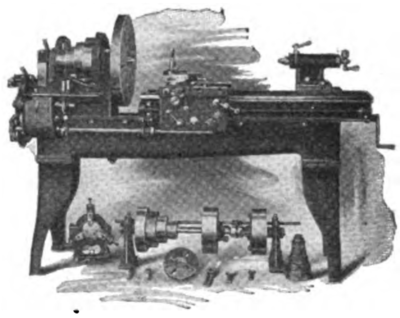
Manufactured by the G. H. Dyer Co., Cambridge, Mass.

The Beardsley Double Acting Valve Lifter is a time saver, for it removes and replaces Ford valves in less than a minute and in other cars in half the time of other valve lifters. The foot of the device is simply shoved under the spring washer and the cam lever pushed down, which action holds the valve down and lifts the spring up, giving more room to remove and replace the valves quickly. Sold under guarantee to give satisfaction. Prompt delivery.



Manufactured by the Loomis-Beardsley Co, 71 East State St., Columbus, O. Patented. Price $1.50.

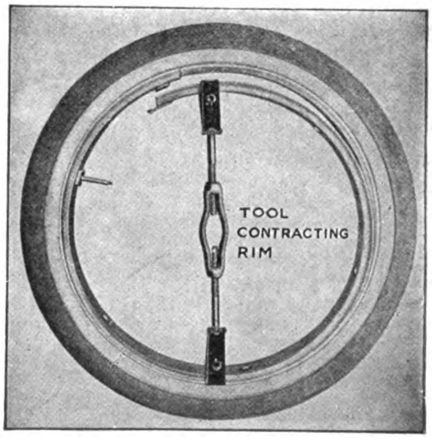
The Sliding Extension Gap-Lathe is capable of handling a wide range of work. It is provided with six quickly changed gear feeds and an extra large spindle. All the gears are covered with safety guards. The bed of the lathe is well braced and accurately proportioned throughout. The top sliding bed and main bed are planed full length and fitted together with dove-tail construction. A screw and crank at one end draws the bed back when it is desired to widen the gap between the centers.



Manufactured by the Barnes Drill Co., 814-30 Chestnut St., Rockford, Ill. Write for prices and literature.

The Mosco Tire Rim Tool shown in the illustration is a handy accessory for the car operator using a machine equipped with split rims. This tool is designed to be hooked over the rim. When so applied and the turnbuckle turned the rim is opened, making the replacement of a tire an easy matter. This tool may also be used for expanding the rim after the tire is applied by reversing the process, the untwisting of the turn buckle exerting sufficient pressure upon the rim to expand it. Dealers can obtain reasonable deliveries.

Manufactured by the Mosco Specialties Co., Waltham, Mass. Price, $3.

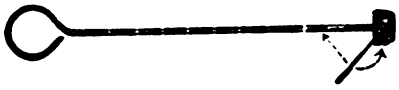


Permatex Heat Resisting Gasket Cement is an extra heavy preparation compounded for use on cylinder heads, carburetors, manifolds, crank cases, gear cases, spark plugs and pump gaskets. It has no harmful action on cardboard, paper, leather, rubber or asbestos or metal, and it is impervious to gasoline, kerosene, oil and water. It is applied in a thin coat to both sides of the gasket just before the gasket is put into place. Prompt deliveries are assured for the next 12 months.

Prepared by Constant A. Benoit, Brooklyn, N. Y. Write for prices.

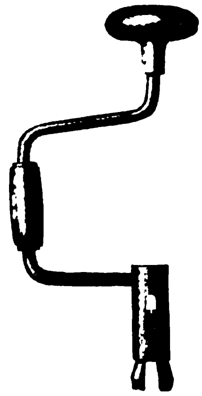
New Literature on Gasoline Hose. The bureau of standards, Department of Commerce, U. S. government, in a recent report comments on the leaks in valves and piping used for conveying gasoline. Of special interest in this connection is the illustrated literature just issued, for free distribution, by Metal Hose and Tubing Co., Brooklyn, N. Y.

The Fawsco Combination Wrench is a combination gasoline gauge, oil cock wrench and cleaner, and the claim is made that it will not only measure the gasoline in the tank, but provide the only sure means of learning whether there is oil in the crank case, as the pin will prove if the oil cock is stopped up or the oil exhausted. It is made of nickel plated, coppered, Bessemer steel rod, with a very high class finish. They are put up in complete packages for the convenience of the trade and dealers are furnished with a very handsome counter display card, upon which is mounted one of the tools, which helps considerably in their sale. Prompt deliveries.



Manufactured by J. H. Faw,' Inc., 37 Warren St., New York City. Retail price 45 cents.

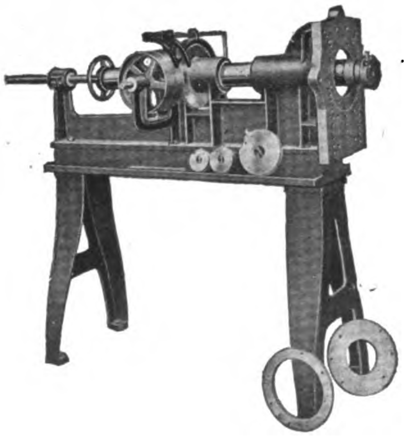
The Utility Universal Rim Wrench is light, compact and fits easily into the tool box without folding. The brace is nickel plated, the tube contains jaws finished in black enamel and the handle corresponds.



Manufactured by the Hill Pump Valve Co., Chicago, Ill. Price, $1.75.

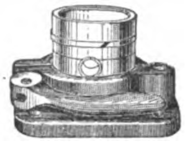
The No. 5 Marvel Reboring Machine is practically automatic in all its working parts. After the cylinder is centered on the face plate the automatic feed release can be set to the cylinder depth and the operator can perform other work while the machine is reboring.

With the present shortage of man power this labor saving machine is meeting with a big demand and the manufacturers state that in order to obtain prompt deliveries orders should be booked at once.



Manufactured by the Marvel Machinery Co., 1301-1307 South Third St., Minneapolis, Minn. Write for prices and descriptive literature.

The Storm Piston Vise for 3¾-inch (Ford size) pistons, holds the piston firmly and in a convenient position for working. The old method of handling a piston in a common vise has been largely by gripping the connecting rod with the piston attached Any attempt to grip the piston itself would not only injure the machined surface, but also press it out of round. Therefore the ordinary bench vise is poorly adapted for piston work It is injurious to the connecting rod, for stress is applied upon it when tightening the wrist pin bolts, which results in distortion of twist with considerable faults in alignment. But more than that it is inconvenient, awkward and interferes with other work at bench.

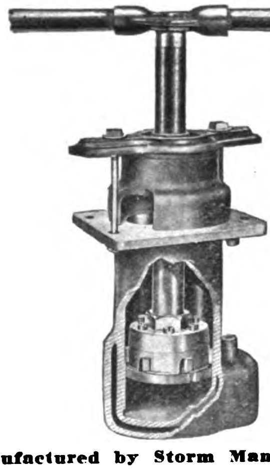


This new Storm Vise grips the piston as it should. Its jaws conform to the shape of the piston and fits it. They are lined with a soft metal and prevent damage to both the piston and the rod. The piston is quickly clamped or released by a single turn of the hand. Quick adjustment is provided for different oversizes. The piston is gripped firmly and cannot be dislodged by the effort employed with the wrench or other tools.

Manufactured by the Storm Manufacturing Co., Thompson, Ia. Price, $10.

The Storm Reboring Machine herewith illustrated is made in various capacities. They are portable machines, suitable for the average garage and repair shop conditions. They are comparatively low in cost, easily operated by men of little shop experience. They are filling a long felt want for a reliable tool for renewing worn and scored cylinders without loss of time and without the necessity of sending them away.

The machines are provided with main cutter heads, each provided with six cutter blades. A single cutter adjuster operates the blades, which may be set to cut any desired oversize and to fit pistons already furnished. The head is fed gradually to the work and is provided with upper and lower supports, which also center the machine. It is adapted for hand operation. A convenient case is provided for storing same when not in use.

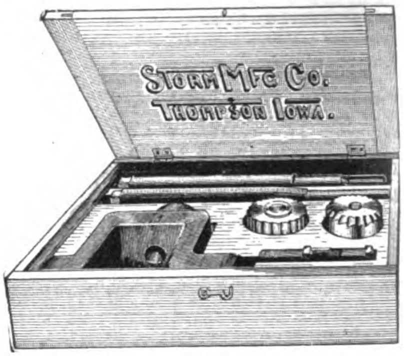


Manufactured by Storm Manufacturing Co., Thompson, Ia. Prices: No. 214, standard large machine, 2⅝ to 5 inches, $115; No. 212, standard machine, 3 11/16 to 5 inches, $80; No. 213, attachment for No. 212, 2⅝ to 3 11/16, $36; No. 204, machine for Ford, $55; No. 206, machine for Ford and Dodge, $60; No. 210, drill press attachments, extra, with straight shank, $7.30; No. 211, drill press attachments, extra, with taper shank, $8.

The Storm Valve Port Renewing Outfit accomplishes three important things: It enlarges the port, forms a new narrow seat similar to that on a new motor, and produces a new stem guide which, when fitted with valves with 1/64 inch oversize stems makes the entire valve system as good or, in fact, better than on the day it left the factory new.

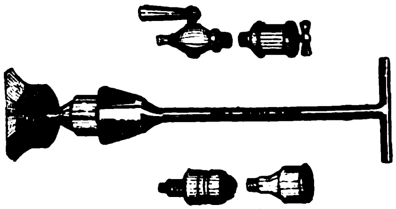
An upper jig or guide is provided. Emphasis is laid upon this feature, as it is the only way absolute accuracy can be obtained. This jig is secured to the engine block by two bolts which fit into the cylinder head bolt holes and it remains in position until all operations have been completed. Then it is swung to the next post by removing one bolt.

With the Storm device an enlarging reamer cuts away a portion of the old seat, enabling the reseating reamer, which is next used, to cut a new narrow seat. The enlarged port is in itself a good feature, allowing a more free passage of the gases, promotes cooling, permits a somewhat higher speed and greater power. The reseating is accomplished in practically the same manner as other tools for this purpose, excepting that the upper jig insures absolute accuracy, whereas without this support the reamer is allowed to vary or wobble, due to the unavoidably uneven pressure exerted by the operator, necessitating a much greater amount of grinding to true up.


STORM MFG CO.
THOMPSON IOWA.

Manufactured by Storm Manufacturing Co., Thompson, Ia. Net price complete $15.

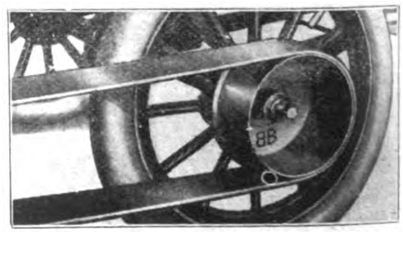
The Universal Grease Cup Wrench is designed to save time, labor and temper. It fits all sizes and types of grease cups without adjustment. It may also be used for other work about the car, such as turning hot or greasy primer cocks, pet cocks or drain cocks, and it will be found especially convenient for reaching cups and cocks in out of the way places. Immediate delivery is assured.



Manufactured by the Prismolite Co., Columbus, O. Price 75 cents.

The Bayne "BB" Auto Power Pulley is an ordinary five-inch crown face belt pulley 10 inches in diameter, correctly designed, so that it can be attached to either rear wheel of an automobile by simply unscrewing and replacing the hub cap, and when attached is a perfect belt pulley for transmitting power to any belt driven machinery. Prompt deliveries.

Manufactured by the Bayne Manufacturing Co., Bushnell, Ill. Price, $5 65.



WALTHAM
8 DAYS

The Waltham Model O Truck Clock is specified by the United States government to run war trucks on schedule time. This clock will keep accurate time all of the time because it is built to withstand climatic conditions and the shock of travel over rough roads. It has two main springs and the radium dial and hands are plainly visible on the darkest night. It is wound only once in eight days at the flash of a red signal on the dial. The United States government, who recently purchased 10,000 trucks for military purposes, specified that they must be equipped with this model clock.

Manufactured by the Waltham Watch Co., Waltham, Mass. Write for prices and literature.

Nazette Connecting Rod Aligning Fixture is an aligning fixture for testing the alignment of new and used connecting rods for Ford engines. It is conservatively estimated that 50% of new rods are not true, and 97% of the rods in engines which have been overhauled are out of alignment. This condition invariably causing a knock which many a mechanic has looked for but could not find. The pins in the tool are made of high carbon steel, double heat treated, hardened and ground. The large pin is accurately fitted into steel bushings, which are also hardened and ground. Immediate deliveries.

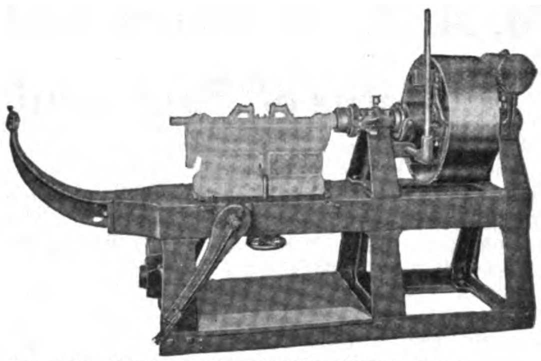
Manufactured by the Nazette Manufacturing Co., Eldora, Ia. Write for prices and literature.

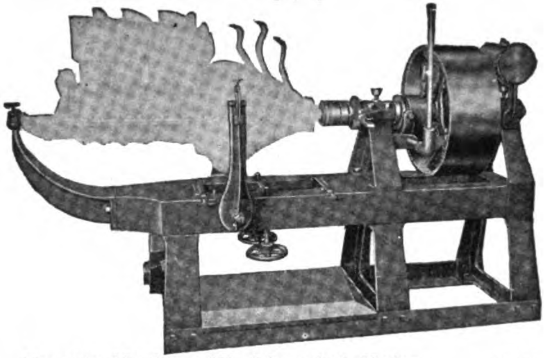
The White Valve Grinder is held in place by the operator with one hand, while with the other hand he operates the slide handle, giving the grinder a reciprocating motion and gives the valve a perfect seat free from ridges. The slide handle delivers the power over the center of the tool and there are no cranks to turn, no side gears, no bows to pull, all of which attachments for driving always serve to pull power off center of a valve. This tool is light, strong and durable and will grind the valves of any car, and in many cases will grind valves where an ordinary valve grinder cannot be used. This tool has two small attachments on the lower end for valves that are either drilled or slotted and with its swivel attachment it is easy to get at the Ford valves under the dash. Orders filled promptly.

Manufactured by the White Manufacturing Co., South Bend, Ind. Price, $2.50.

The Nazett Combination Burning-In and Work Out Machine will permit the average mechanic with a limited experience to burn-in all the main bearing and connecting rod bearings of a Ford engine in one hour's time and have a better job than could otherwise be obtained in several hours time. The machine is designed to be operated by a minimum amount of power, as most shops are equipped with small motors. It is amply provided with adjustments, provision being made for raising and lowering the cylinder block to allow proper alignment by means of positive and quick adjusting blocks, which slide in accurately milled grooves in the main bed plate. An expanding clutch is used with hard wood friction blocks controlled with turn buckles. Bronze shoes are used in the clutch throw out collars.

To test the tightness of the bearings during the burning in operation the knurled handle clutch lever is removed from its socket and inserted in the socket provided on the clutch arm, which enables the operator to turn the crankshaft by hand. It is not necessary to remove the cylinder block from the machine to tighten bearings or inspect same, as this may be done while the machine is running. Openings are provided in the main bed plate through which the valves are free to operate and permit the easy replacement of pistons. In fact it is not necessary to remove the block from the machine until it is ready to be bolted to the crank case. The heavy flywheel when under motion helps to maintain a more constant speed with a minimum amount of power.


Nazette Machine Burning-In Bearings.

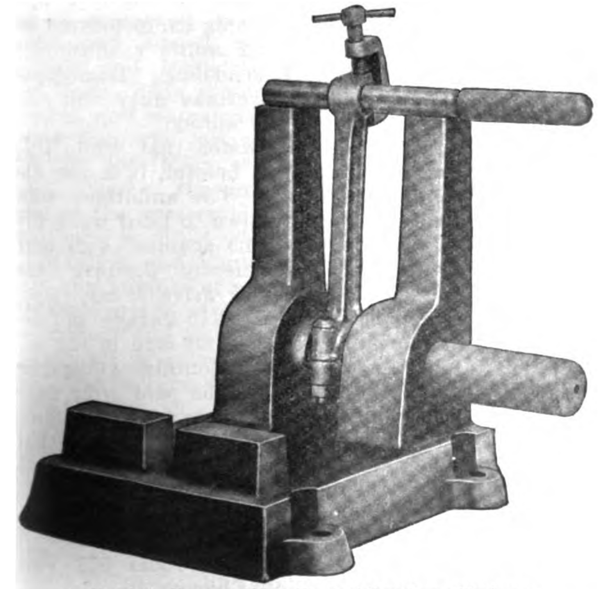

Nazette Machine Working Out Motor.

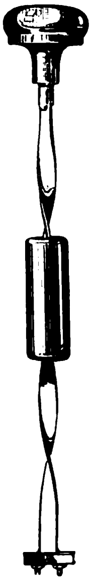
To convert the machine into a workout machine it is simply necessary to raise the two side arms, lock them into a vertical position and place the assembled engine into position. Convenient adjustments are properly provided for to align same. It is very essential to work the engine for a short time after it has been overhauled and this test will enable the mechanic to discover such defects as piston slaps, noisy timing gears and oil leaks. The machine is provided with brackets to attach the regular Ford coil box. A gasoline tank is equipped to connect the carburetor. Prompt deliveries.

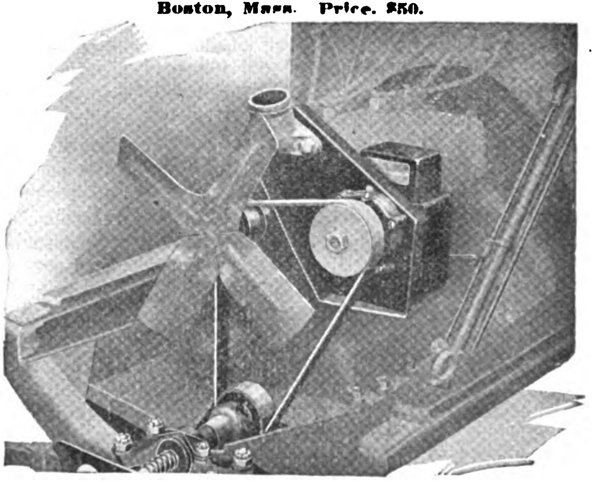
Manufactured by the Nazette Manufacturing Co., Eldora, Ia. Write for prices and literature.

Genolite (standard six volt system) gives the Ford a constant and sure head and tail lights while running or idle. This system is easily installed as no machine work is involved. It is operated by a patented flat belt, positive and guaranteed generator drive with minimum wear. The lighting switch is conveniently located on the steering post with two positions—full touring and dim. This system can do double duty. In addition to furnishing lights it will give you ignition for your engine, two sources of current always available—one battery and one generator. Prompt deliveries.

Distributed by automobile division, Pettingell-Andrews Co., 100 Brookline Ave., Boston, Mass. Price, $50.


Nazett Connecting Rod Aligning Fixture.


White Valve Grinder.


Genolite Lighting System for Fords.

M. A. M. A. Issues Statement as To Status of Parts and Material Makers

Owing to the fact that the parts and materials makers in the motor car industry have been operating under a rather indefinite status as regards procedure in filling orders and securing materials, the Motor and Accessory Manufacturers' Association has issued a statement explaining the situation as it applies to manufacturers in these branches so far as it has been interpreted to date.

The statement is given practically in full as follows:

Under an agreement between the War Industries Board and the National Automobile Chamber of Commerce, passenger car manufacturers will be permitted to purchase steel and iron, and parts involving the use of steel and iron, sufficient to balance their inventories of materials on hand up to a maximum production during the last six months of 1918, of 25 per cent. of their total production in 1917.

The Automotive Products Section is notifying each manufacturer, as quickly as possible, the number of cars he is to be authorized to build from July 1 to Dec. 31, 1918. Such notification is contingent upon receipt by the chief of the Automotive Products Section of the manufacturer's sworn inventory and a signed copy of the pledge prescribed by the War Industries Board.

Permits to buy materials—Upon receiving such notification the car manufacturer must forward to the Steel Section of the board an application in triplicate for permit to purchase steel or iron. There must be an application for each separate order, and the application must state the name and address of the manufacturer with whom order is to be placed, destination of the material or parts, description of the order, tonnage, classification and quality, and a statement of the purpose for which the material or parts are to be used.

When approved by the director of steel this permit is attached to the car manufacturer's order on the supplier and may be taken by the latter as authority for filling the order.

Industry priority certificates—Motor trucks for "essential civilian use" have been accorded a priority rating of class "B4." Before such priority certificate will be issued to a truck manufacturer he must file with the Automotive Products Section a sworn statement of past production and a signed "Pledge of Co-operation." He is then granted an Industry Priority Certificate granting a priority rating of class "B4" and authorizing him to purchase all necessary materials and parts to complete a specified number of trucks from July 1 to Dec. 31, 1918.

Affidavits—Each order placed under such certificate with a supplier of parts or materials, of whatever nature, must have attached to it a sworn affidavit in the form set forth for the purpose in the industry priority certificate. This affidavit may be accepted by the supplier as authority for filling the order.

This arrangement dispenses with the necessity for filing individual application for priority certificates, so far as trucks for civilian use are concerned.

Class "A" certificates—Trucks, passenger cars, motorcycles, tractors, etc., to be furnished on orders of the United States government or allied governments, get a class "A" priority rating. Individual applications for priority certificates to purchase materials and parts for them should be filed as heretofore.

Supplies of Materials and Parts—Are not permitted to fill orders from passenger automobile manufacturers unless such orders are accompanied by

(a) An approved permit issued by the director of steel, or

(b) A statement showing that a special priority certificate has been approved and giving number of certificate and priority rating.

Orders from truck manufacturers—Should not be filled except when accompanied by

(a) Prescribed form of affidavit showing that the truck manufacturer has been granted an industry priority certificate (giving number) and accorded a priority rating of class "B4," or

(b) A statement that a priority certificate granting a different rating has been approved.

No pledge from parts maker—Parts makers are not required to sign a pledge in order to obtain permission to fill orders from passenger car and truck makers. Neither is the car or truck manufacturer required to furnish a pledge to the steel or parts maker.

Orders by parts makers on steel suppliers—Procedure regarding placing of orders by parts makers with their suppliers has not been determined upon in detail as yet. This may necessitate a meeting of the representatives of the parts makers with the War Industries Board. Meanwhile, it is believed that the parts maker should accompany his order on the steel supplier by the affidavits and permits received from the truck and car manufacturers, or else by an affidavit of his own to the effect that he has received orders from certain automobile and truck manufacturers (specifying them by name) calling for certain quantities of parts and that these orders have been accompanied by the affidavits and permits prescribed by the War Industries Board. Care should be taken not to include with these any orders for parts or materials for war orders which take a higher priority rating.

Parts makers supplying jobbers or retail trade—Until some other procedure has been determined upon, parts makers who supply the jobbing trade or direct to individual automobile and truck owners, are considered as coming under the same requirements as the car or truck manufacturer. Thus manufacturers of truck attachments of the "Form-a-Truck" type and truck body builders are being granted industry priority certificates upon receipt by the board of their sworn production statements and pledges of co-operation.

HOLT SALES MANAGER OF MANUFACTURERS' DIVISION.

B. B. Holt has resigned as purchasing agent of the Harroun Motor Corporation, Wayne, to become sales manager for the manufacturers' division of the Bradfield Co., Kresge building. Mr. Holt is one of the pioneers in the automobile industry, having been associated with Hudson, Cole, Hupmobile, Studebaker and Harroun. The manufacturers' division of the Bradfield company are at present engaged in the furnishing of such material on war contracts in plants in Michigan, Indiana and Ohio.

BALL BEARINGS AND STEEL BALLS ESSENTIAL.

The War Service Committee of the ball bearing industry and steel ball industry have issued a bulletin calling attention to the fact that these products have been recognized as essential by the War Industries Board, which has placed manufacturers of ball bearings and steel balls on the preference list with a rating of "class B-3," conditioned upon their executing and filing pledges of cooperation with and observance of the rules of the priorities division.

Red Cross Wants Men with Motor Car Experience

The Automotive and Mechanical Section of the American Red Cross, a recently created department under the direction of Major H. P. Harding, has issued a call for 1500 men with some mechanical knowledge to drive trucks and ambulances overseas.

A course of three to five weeks will be given in the training camp located in Chicago, comprising military discipline and mechanical schooling. Immediate entrainment for overseas duty will follow completion of training.

Major Harding states that while mechanical training is helpful, it is not absolutely necessary. The ambitious man who will knuckle down to hard work for a few weeks can acquire sufficient knowledge to efficiently perform his duties if he can now drive a car. Special appeal is directed to garage and repair men, dealers and all men in the automobile industry. Monthly allowance and maintenance will be paid after date of sailing; half pay and maintenance while in training. It is very likely that this quota will be quickly filled and it is suggested that those desiring to get into this branch of the service get their applications in as early as possible.

Headquarters are at room 528 People's Gas Building, Chicago, Ill.

ADJUSTABLE EXTENSION FOR GEAR SHIFT LEVER.

Mellin's Adjustable Gear Shift Extension, as its name implies, is a reversible extension lever by means of which the operator, with a single arm movement, can shift gears easily and rapidly without changing position or moving the body. It brings control of the gearshift lever to a position where it is handled with the same ease of effort as required to move the throttle, as the extension not only eliminates the need of reaching, but increases the leverage that is exerted. These extensions are made to fit any car and can be attached in a minute and adjusted to any position by simply setting the lock nuts tight. When ordering the make and model of car should be stated.

It's so Easy Now
No More reaching for the gear shift lever
M & H Novelty Co.
857 E. 24th St.,
Los Angeles

Manufactured by the M & H Novelty Co., 857 E. 24th St., Los Angeles, Cal. Prices, $1.25 to $2.

GASOLINE BY AIR PRESSURE.

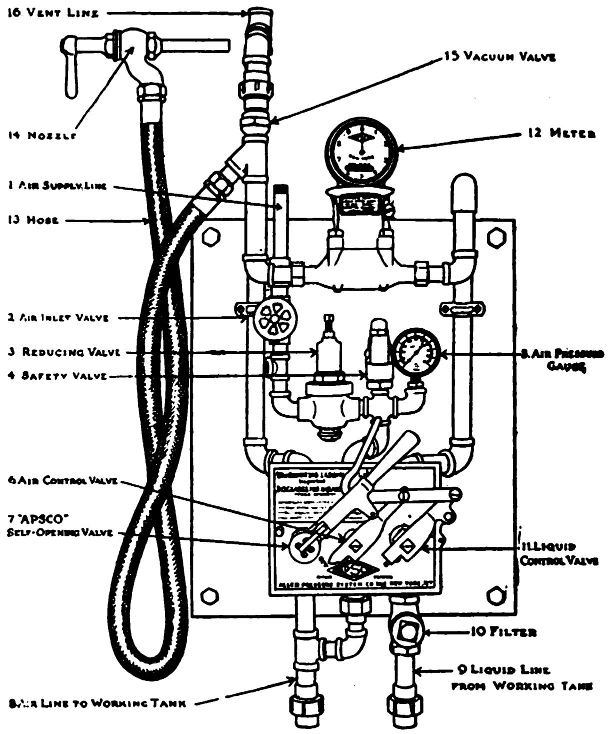
The Apsco storage and distributing system transfers liquid by means of air pressure, directly from storage tanks to any elevation of floors and thence to automobile tanks, vats or other receptacles. All liquid passing through the system is measured by an Apsco meter, tested and sealed by the Bureau of Weights and Measures of the City of New York. The system is simply constructed and operated. The measuring device has the precision of accuracy, with the possibility of any waste eliminated. One of the most important features of the system is that the storage tanks may be filled while the system is in operation and liquid may be drawn off at any number of points where draw-off panels are located at the same time. The system can be connected with any existing air pressure system in the garage. There is no possibility of wasting a drop of fuel, as when operator lets go of lever it goes back to the shut off position. The liquid cannot be left running nor is it exposed to the atmosphere at any point within the system, nor is there any opportunity for the liquid to vaporize or for gases to collect, thus saving the full strength and quantity of liquid, also eliminating the possibility of ignition and explosion.

The liquid remaining in the system when the flow is stopped is prevented from returning to the tank by means of a check valve, which assures immediate delivery of liquid when the next draw is desired. The working tank is set lower than the storage tank in order that it may quickly fill by gravity or syphonic action as soon as the air pressure is released. The liquid and air are prevented from escaping back into the storage tank by a trapped check valve, which closes the instant the air is applied and opens when the pressure is released. The storage tank is vented to the atmosmosphere at all times and the working tank is likewise vented except when the panel is in operation. Panels and tanks may be purchased separately and installed by local contractors, or the manufacturers of the system will furnish an estimate for installing. Each draw off panel is operated from an individual tank, any number of which may be connected to one or more storage tanks, and the system cannot be affected by the inactivity of storage tanks, providing one remains in service. The system has been approved by the National Board of Fire Underwriters, thus assuring the lowest possible insurance rates and absolute safety from fire originating at any point in the system.

Firmly grip self-opening valve (7), thereby closing vent line, then move handle to left as far as the stop; this opens valves 6 and 11, permitting air to pass through line (8) to top of liquid in working tank, creating a pressure upon same which drives contents up through line (9) from bottom of working tank, passing through filter (10), valve (11), meter (12), discharging through hose (13) and nozzle (14), into automobile tank or any other receptacle. When required amount has been drawn, move handle to right as far as the stop; this closes valves 6 and 11, shutting off air and discharge; then release grip, permitting valve (7) to open, allowing air to be released from the working tank, which escapes through the vent line (16) to outer air. This gives working tank an opportunity to refill. Should the finger grip on valve (7) be released when handle is in left position, the air would escape up through vent, thus automatically shutting off flow, as no liquid can be discharged unless grip is sustained.

The Apsco standard draw off panel is furnished complete with unions ready for connecting to pipe lines.

Manufactured by the Allen Pressure System Co., Inc., 16-24 W. 61st St., New York City.



"APSCO" DRAW-OFF PANEL

PACKARD PLANT NOW ON 100 PER CENT. WAR WORK.

The plant of the Packard Motor Car Co. at Detroit has been placed on a 100 per cent. war work basis and its product will be confined to Liberty engines, airplane bodies, war tractors and trucks. The plant now comprises 61 buildings, which cover 56 acres of ground and gives employment to 12,000 persons.

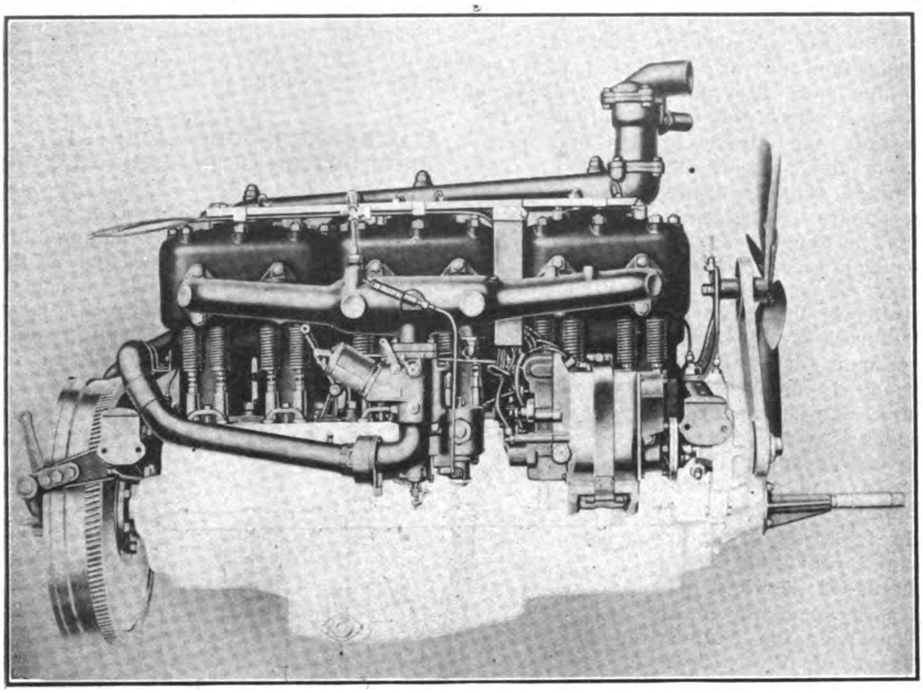
STUDEBAKER CORP. WILL STOP PRODUCTION OF PASSENGER CARS.

The Studebaker Corporation, South Bend, Ind., will cease the manufacture of passenger automobiles as soon as the present stocks of materials have been worked up. The company has large munition contracts, which will require practically all of its manufacturing facilities and employees.

REAR SIGNAL LIGHTS AS FACTOR IN INSURANCE ECONOMY.

Insurance companies in giving a substantial sum off on theft insurance name the locks which may be used. It will be interesting to see whether the companies will accept other locks than are now being pushed on the market, and also whether they will take favorable action on the matter of collision insurance. K. G. Barkoot of the Chamber of Commerce building, Detroit, sole distributor of the Roedding Signal Tail Light, has appeared before several insurance heads to place the matter of reduction of insurance for collision policies, when the Roedding Signal Tail Light is used, squarely before them. Some promises of success have been gained and many have agreed to test the Roedding Signal Tail Light before making a decision.

Pierce-Arrow "Series Five" Has Dual Valve Engine



Intake Side of the Pierce-Arrow 48 Horsepower Dual Valve Six-Cylinder Engine.

The Pierce-Arrow Motor Car Co. of Buffalo, N. Y., has earned and enjoys a reputation in the motor car industry that has given its product of both passenger cars, as well as trucks, singular distinction throughout the world. Pierce-Arrow automobiles have been developed along tried lines and changes in body lines or mechanical design have been made only after careful and exhaustive tests, a fact which makes any announcement of the incorporation of radical changes in their models take on exceptional importance in the industry and is a matter of great interest from an engineering viewpoint as well.

With these facts in mind it was natural to expect that the announcement of the new Pierce-Arrow "series five" with dual valve six-cylinder engines was accompanied by the statement that this type of engine was being adopted after long and thorough tests and trials had established its efficiency, as the Pierce-Arrow policy of building the best possible motor car and then fixing the price is adhered to strictly.

Production, however, of this type of engine has been confined to the 48 horsepower motor, as the manufacture of the other two, the Pierce-Arrow 38 and 66 horsepower, have been discontinued until after the war.

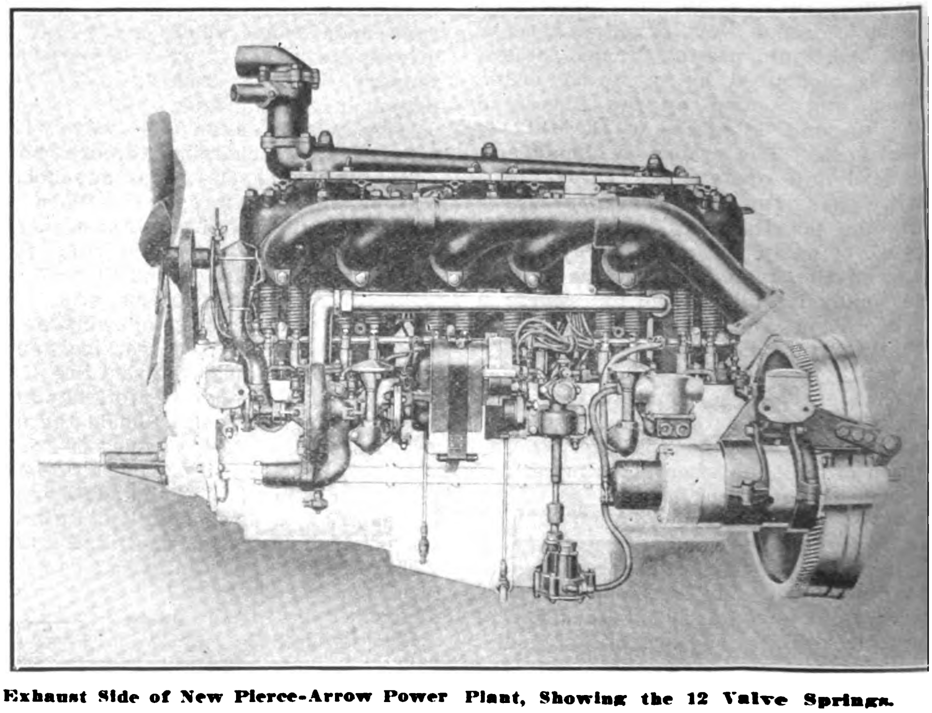
"The tendency today is to demand better direct drive performance from passenger cars than ever before," the announcement states. "It therefore has become necessary to obtain the utmost efficiency from our engines. The Pierce company have been experimenting for years in order to improve the horsepower output of their engines. They have built various types of six, eight and 12 cylinder engines and the result of these experiments has been to convince us more than ever that for passenger car requirements the six-cylinder engine is preferable to any other type.

"The greater power developed in some of the above engines, especially at the high speeds, indicated that this was due almost entirely to the large sized valves employed compared to cylinder volume, this insuring a very high volumetric efficiency. In order to equal this condition in our 48 horsepower engine with its 4½x5½ cylinder, we found that it would be necessary to use a valve three inches diameter with a lift of three-eighths inches. This is as high a lift as it is possible to use and retain reasonably quiet valve action with large diameter valves. This size of valve is, of course, prohibitive because of noise due to the heavy spring pressure required, and the tendency to warp out of shape. The standard practise is not to exceed with single valves, a throat diameter half the cylinder bore—this would give a valve 2¼ inches diameter for our 48 horsepower engine. This is practically the size we have been using in the past for this engine. We did all we could to obtain more power from this engine with this size of valve, but without success, and we decided to try double inlet and double exhaust valves in this same sized engine. These valves are 1⅛ inches diameter in the throat, with three-eighths inch lift, giving the same area as a three-inch diameter valve with three-eighths inch lift.

"With this arrangement of valves on a T head cylinder it was necessary to adopt detachable heads. The results we obtained in increased horsepower and speed exceeded our anticipations.

"We also found the engine ran cooler —the valves being so small warped less, and therefore seldom require to be ground in, the light valve springs gave a very quiet valve action and the engine was very much better in regard to economy of fuel than our former engines.

"The acceleration on opening the throttle is remarkable and all these attributes are present and are very apparent to the driver of the car fitted with this engine, as compared with our 48 B-4 model. The acceleration is very much more rapid. The power is very much greater, hills that before necessitated a change of gear can be mounted on high.



Exhaust Side of New Pierce-Arrow Power Plant, Showing the 12 Valve Springs.

"The dual valve six engine has dual valves. In other words, each cylinder has double intake and double exhaust valves. This enables a maximum explosive charge and a maximum scavenging of the cylinder.

KNOWING THE COST OF DOING BUSINESS AND HOW TO FIGURE THE "MARK-UP."

(Continued from Page 19.)

sales, add to it the per cent. of net profit as based on sales and completely forget that these figures aer not based on the cost of merchandise as they should be. Therefore, the mark-up percentage is too small, for the sum figured as a percentage of the total sales always is smaller than the same sum figured as a percentage of the total cost of merchandise.

To prove this, suppose the sales for a certain store are $50,000. The cost of doing business is $9500 and the cost of merchandise is $38,000. The remainder, $2500, is the net profit. The cost of doing business, figured as a percentage of sales, will be as follows:

$50,000 $9,500.00 .19 (19 per cent.)
5,000.00

4,500.00
4,500.00

The net profit figured on the sales will be:

$50,000 $2,500.00 .05 (5 per cent.)
2,500.00

Now basing the same figures on the cost of the merchandise, we find they are as follows:

$38,000 $9,500.00 .25 (25 per cent.)
7,600.00

The net profit:

$38,000 $2 500.00 .066 (6.6 per cent..)
2,280.00

220.00
228.00

Here we find a difference of six per cent. between the cost of doing business figured as a percentage on the sales and as a percentage of the cost of merchandise; and in the net profit there is a difference of 1.6 per cent. Suppose a dealer takes the wrong figures as the basis of his mark-up. Say an article costing $4, and in the effort to find his retail price he uses the percentage as based on the sales. He would figure:

19 per cent. plus 5 per cent. is 24 per cent (the cost of doing business plus the net profit as based on the sales.)
$4 times 24 per cent. is .96 cents (gross profit).
$4 plus 96 cents is $4.96 (his selling price).

Would a profit be made at this figure? By using the correct figures the result would be:

$4 times 25 per cent. (his real cost of doing business) is $1.
$4 plus $1 equals $5 (a selling price, figured on a correct cost of doing business, but without taking any net profit.)

It will be plainly seen that the dealer who erroneously marked his goods to sell at $4.96 would be paying four cents for the privilege of handing them over the counter to his customers. But if this dealer figures his mark-up so it will bring him a profit he will proceed as follows:

25 per cent. plus 6.6 per cent. equals 31.6 per cent. (gross profit).
$4 times 31.6 per cent. equals $1.26.
$4 plus $1.26 is $5.26 (his correct selling price).

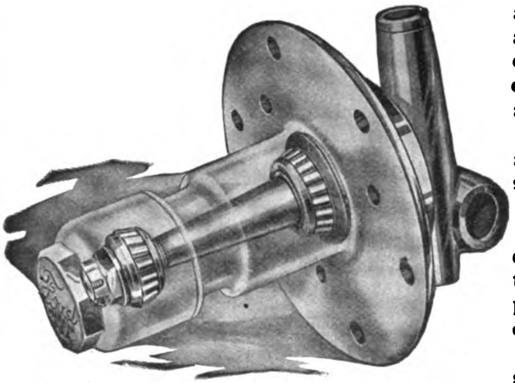
The above illustration will show how easily it is to become confused in figuring mark-up when in reality money is being lost. So it is tremendously important that a dealer know exactly what he is doing. If he counts on too small a mark-up he will only be cheating himself and paving an easy road for loss. And if this trouble persists in all mark-ups, all opportunity to make money is lost. On the other hand, if he unwittingly figures too large a mark-up, he runs the risk of selling at a higher figure than his competitors and loses trade by so doing.

WRIGHT ROLLER BEARINGS FOR FORDS.

From the beginning of the idea of installing roller bearings in Ford front axles, a condition confronted all manufacturers which tended to ruin the bearings after a few hundred miles running, due to no fault of the bearing itself, but to the method necessary to mount the bearing in the axle.

It was found after actual use that the shoulder which held the ball bearing was not suitable for use with the roller bearing and hence it could not be held firmly. A tendency to cock on the seat after a short time was found, which ruined the bearing.

In order to overcome this difficulty the Wright bearing was redesigned and a new inner ring made in such a way that another seat is made which is at right angles to the outer face and which will fit any Ford.



Showing Wright Roller Bearings in Place on the Ford Spindle.

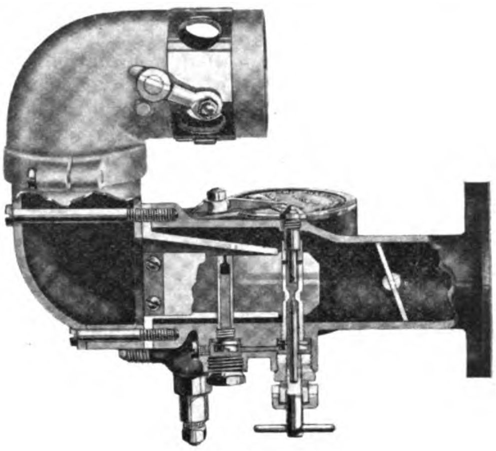
This feature (on which patents are pending) is possible in the Wright design alone, as other types of roller bearing cannot use this ring without changing the entire design of the bearing itself.

This new point of superiority gives the "cageless" Wright bearing further leadership in the Ford field. It is sold by the National Bearings Service Co., Broad street and Girard avenue, Philadelphia.

PRINCIPLES AND ADJUSTMENT OF TILLOTSON CARBURETOR.

The Tillotson Carburetor, manufactured by the Tillotson Carburetor Manufacturisg Co. of Toledo, O., is now used extensively, a fact which has created great interest in its principles of operation and adjustment.

It is similar in design to other carburetors except that the Tillotson air valve forms the restricted passage for the air passing through the carbureor.



Showing Automatic Air Valve.

The restriction at the small end of the valve is predetermined to equal the requirements of the motor at slow engine speeds, and at that point is located the primary fuel supplying nozzle, and that nozzle is provided with an adjustment. The secondary nozzle is located farther back and open to atmosphere so that no gasoline is drawn from the secondary at the slower engine speeds.

As the throttle is opened and the engine speed increases. the two flexible, yielding steel spring reeds open outwardly in proportion to the throttle. As the engine speed is increased the area through the air valve is increased in size, then the secondary nozzle commences to deliver fuel into the path of air at some open position of the throttle and continues to deliver fuel at all higher engine speeds and discontinues delivering fuel as the throttle is again closed and engine speed reduced.

The primary nozzle feeds the required amount of fuel at all slower engine speeds and reaches its maximum volume at a partially open throttle and continues to feed this maximum amount during the full range of engine speeds, therefore a single adjustment to the primary nozzle effects the mixture at all engine speeds.

The air valve having the proper restriction for slow engine speeds, and having its area equal to the maximum does not therefore need any adjustment, as the fuel adjustment is sufficient. The adjustment should be made very carefully and should be done when the motor is well warmed up and while the engine is running reasonably slow. Turn the adjustment of the primary nozzle up to the right just a little at a time, and keep turning it until the motor commences to slow down from lack of fuel, then turn it back about one, avoiding getting the mixture too rich.

War Industries Board Advises Suspension of Winter Shows

The War Industries Board has urged that all plans for automobile shows be abandoned for the coming winter. The announcement was made in a statement authorized by B. M. Baruch, chairman of the board. The statement is as follows:

The National Automobile Chamber of Commerce has cancelled the national automobile shows of 1919 to have been held during January and February in New York and Chicago, at the request of Bernard M. Baruch, chairman of the War Industries Board, and George N. Peek, Commissioner of Finished Products.

Going further to meet the views of the War Industries Board, the automobile industry leaders have urged promoters of local shows for automobiles, trucks or accessories to abandon all plans for such during the coming winter.

The reason given to the industry for this action by the Automobile Chamber of Commerce is a desire to cooperate with the War Industries Board in plans for conservation of fuel, labor and transportation.

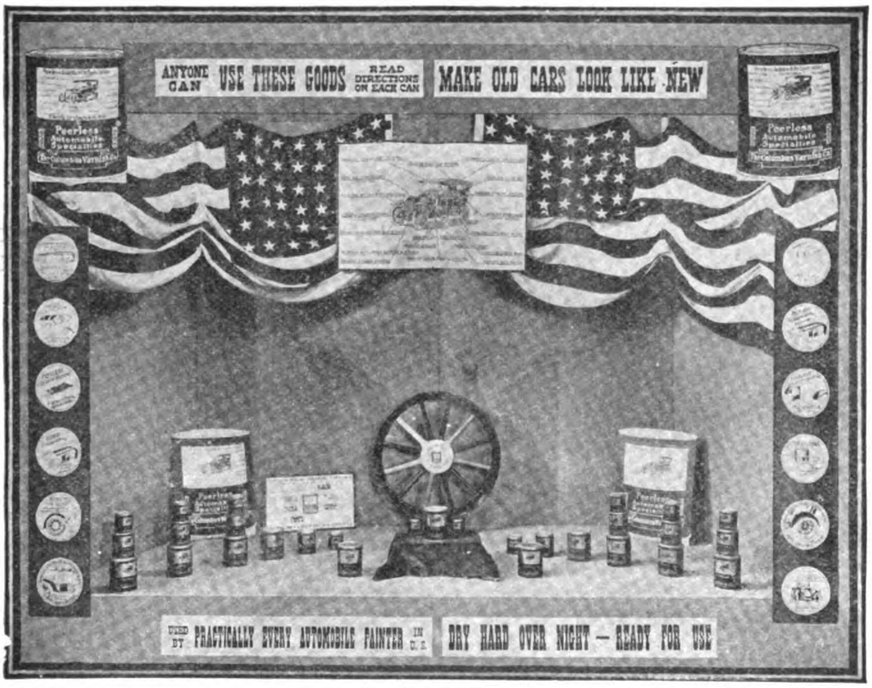
The question of advisability and practicability of holding these shows, both national and local, was taken up with Messrs. Baruch, Peek, Alexander, Legge and Judge Edwin B. Parker of the War Industries Board, by Hugh Chalmers and Alfred Reeves of the National Automobile Chamber of Commerce, and Mr. Peek strongly urged that all such exhibitions be abandoned for the winter. Mr. Chalmers presented the views of the War Industries Board to his Chamber of Commerce and Mr. Peek has received from Mr. Reeves, general manager of the chamber, a letter stating that the directors of the chamber concurred unanimously in the opinion of the board and has adopted the following resolution:

"Resolved. That the promotion of national automobile shows during the winter of 1918-19, with consequent use of transportation, fuel and labor, would, in the opinion of this board, be inconsistent with the patriotic obligations of the industry and that, therefore, national shows be suspended until further action of the association.

"Resolved, That for reasons expressed in the foregoing resolution, promoters of local and other shows be respectfully requested not to hold automobile, truck or accessories exhibitions during the winter of 1918-19."

WINDOW DISPLAY MATERIAL FOR PEERLESS SPECIALTY DEALERS.

The Columbus Varnish Co., Columbus, O., manufacturers of the "Peerless Automobile Specialties," are distributing their new fall window display matter, which is put out for jobbers, dealers, hardware and automobile supply houses. This material includes cut outs, streamers, center design, signs and wheel showing various colors, all of which can be combined in a very attractive display as shown by the striking window design in the accompanying cut.


ANYONE CAN USE THESE GOODS READ DIRECTIONS ON EACH CAN
MAKE OLD CARS LOOK LIKE NEW
Peerless Automobile Specialties
USED BY PRACTICALLY EVERY AUTOMOBILE PAINTER IN U.S.
DRY HARD OVER NIGHT — READY FOR USE

Suggestion for Window Display of Peerless Automobile Specialties, Made up of Cut Outs, Streamers, Signs, Wheel and Center Design Furnished by Columbus Varnish Company to Dealers.

Every live dealer in automobile supplies knows the value of artistic and strong window displays in moving his goods and any line of merchandise that is given this kind of support moves from the shelves far more rapidly than if left there to sell itself.

ECCOLENE STIMULATES AND TEMPERS GASOLINE TO ADVANTAGE.

All products have a greater value when they are hard to get. The water is always missed most after the well has gone dry. Gasoline or motor fuels, and the latter is a better name nowadays for the material which is furnished, have not gone dry, but they are of very much lower grade, and are not usually as efficiently used as was the old 76 degree gasoline in the early days. Yet as a matter of fact the present lower or heavier grades of motor fuel oils contain more heat units and consequently more power than did the 76 degree gasoline. The trouble in the past has been that motorists have not been able to properly use the heavy fuel so as to make use of these added heat units. This is shown conclusively by the carbon deposits in the fire chamber, and on spark plugs, choked mufflers and motor fuel liberally mixed with the oil in the crank case. This motor oil in the crank case thins out the lubricating oil and makes it much less efficient. It is now necessary to drain the crank case every few hundred miles instead of using the oil for a thousand miles or more, as was once the case. Carbon deposits in the fire chamber cause the motor to knock or pound. Should this carbon get sufficiently hot it will cause a poor ignition and overheating of the motor. Carbon on the spark plugs short circuits the plug. The choked muffler delays the exhaust gasses from escaping, and so causes back pressure that might effect the prompt closing of the exhaust valve. This would result in the loss of motor power and added waste of fuel. A method of correcting all these evils has been recently made known, and it is now possible to use the lower or heaviest motor fuels without the great waste and without motor trouble. Eccolene properly mixed with the motor fuel will make it possible to so improve this firing mixture that the heavy ends of the motor fuel are efficiently consumed, and so consumed that they add power to the motor instead of causing carbon deposits in the fire chamber and on spark plugs, and condensation, causing the mixing with the lubricating oil in the crank case. Ralph De Palma, the speedy champion; Louis Chevrolet, Ralph Mulford and many other stars of the racing world, and many business firms and factories are today using this material and have testified to its qualities and its ability to perform the apparent miracles claimed.

Distributed by Edward A. Cassidy Co., New York City.

CASH REGISTERS AID DEALERS.

Merchants today are facing business conditions that are without precedent as a result of the war. No business can be successfully carried on along the old lines. It must be adjusted to meet existing conditions.

The merchants of the United States have for the last few months been facing the same conditions and struggling to solve the same vital problems that have been met and overcome by the merchants of Canada and England in the last four years.

The Commercial Economy Board asks the stores of this country to conserve man power, materials and money, and to stop waste wherever it may be found. The things the government asks the stores to save and stop are the products of old, slow, wasteful methods. They are the very things that the English and Canadian governments asked the merchants of their countries to stop four years ago.

Merchandise, overhead and operating expenses have gone up and will increase still further. In order to maintain normal profits it is necessary to cut down expenses as far as possible, stop losses, avoid lost motion, eliminate waste and work faster. No store can hold on to the old, worn-out methods and operate at the speed that is required by the present day conditions.

The war has called thousands of trained help out of the stores—the new help is untrained. At the very time that the government is spending billions of dollars and everybody has work and money, so that business is unusually good, merchants have not enough trained help to handle their trade.

That is the present problem of the merchant. How can he carry on business more efficiently than ever before, meet bigger business with less help and avoid all waste? On the way he solves this problem depends not only the extent to which he will benefit by the coming time of general prosperity, but whether or not he can with justice feel that he is doing all in his power to help win the war.

This matter is of vital importance to the merchant. He owes it to himself as well as to his country to make certain that neither his time, goods, nor money are wasted. If he is to actively cooperate with our government in this crisis and at the same time benefit himself, he must conserve labor, eliminate waste and speed up his business. He can only achieve these results by having a more efficient system than he has heretofore used.

There are two ways of learning, by experience and by observation. The least expensive way is to profit by the experience of others. The merchants of Canada and England found but one solution to this problem. That same solution has been found by progressive merchants of America. That is, labor saving machinery that will do the work of human hands. But labor saving machinery to do the work of human hands in a store must be able to do automatically a good many things that require both physical and mental effort on the part of clerks.

The cash register answers the requirements. Many merchants have stated that only through the use of cash registers were they able to continue to do business at a profit. Stores that have cash register equipment have found it easier to meet the requests of the government.

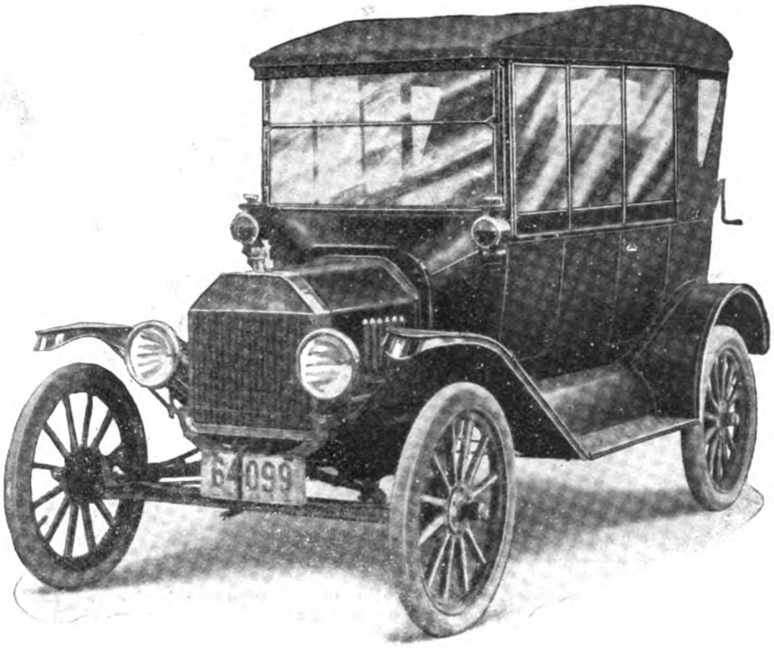
With cash registers the clerk-wrap plan can be followed by department stores. This largely does away with the need of cashiers and wrappers. The register enables clerks to make more sales. It reduces deliveries. It helps to increase business without increasing the operating force. It makes every motion count and speeds up the whole organization. It makes it possible for the stores to operate with fewer clerks. It gives quick service, which increases "takes" and decreases deliveries. It saves clerical supplies and delivery supplies. It cuts down clerical work.

The clerks have fewer steps to take; they do not have so much writing to do; they can make two sales where before they made one. These are some of the reasons why merchants who are anxious to comply with the government's request to conserve man power, materials and money and to stop waste, have found greatest assistance in cash registers.

A CONVERTIBLE TOP WITH GLASS DOOR AND WINDOW PANELS.

The idea that automobiles were toys and should be used only in clement weather and on good roads, passed years ago with the marketing of the many devices that insure the operator and passengers of comforts on cold and stormy days that make driving in the open more satisfactory than riding in trains. Of these many devices for providing against the unpleasant features of winter weather none have contributed so much to the satisfying results as the convertible top, which can be put in position in a few minutes or folded back again in as short a time, giving the owner all the protection required, while at the same time adding little weight to the load carried to the car or incurring the expense of a permanent enclosed top or that of keeping an enclosed car for winter and a touring type for spring, summer and fall use.

One of the most serviceable of this type of tops is the "A W" all-weather convertible top. In designing it the makers kept in view the various points that a motorist would consider in judging a top and have produced a product which not only meets the essential requirements of a convertible top as a protector for the passengers against the elements, but one that adds to the appearance of the car when up, and in which every detail of workmanship indicates that the maker's idea for a superior product has been carried out. It is, however, simple in construction, a feature which greatly enhances its value as there are no complicated parts or mechanisms to cause trouble or to rattle and squeak.


The "A-W" All-Weather Convertible Top Installed on a Ford Touring Car Giving Complete Protection to the Occupants.

It consists of a patented "one-man" top, shaped to conform to the lines of the car body and of removable windows made of glass, enclosed in light steel frames, which are carried in the car at all times. The top frame is made of steel covered with flexible weather proof material and is lighter and more resilient than a permanent wooden top. The door panels open with the door, an arrangement that eliminates the use of side curtains.

It has very graceful lines, which follow those of the car, and there is no overhang or other disfiguring projections. There are different sizes for all makes of cars.

The "A W" all-weather convertible top is manufactured by the Adams-Williams Manufacturing Corporation, 351 West 52nd St., New York City.

RECORD OF NEW BUILDING PLANS

Contracts Made and Plans Contemplated for Alterations or New Buildings

PLANS AND SPECIFICATIONS.

Little Rock, Ark.; United States Auto Co.; one-story garage at 20th and Main streets; $75,000.

Los Angeles, Cal.; F. M. Dimmick; one-story garage, 94x120; at Fourth and Olive streets; $56,000.

Los Angeles, Cal.; Ponet Co.; one-story garage, 60x155.

San Francisco, Cal.; C. Hunt; one-story garage; $9000.

Hartford, Conn.; Adam Purves; one-story garage at 108 Kenyon street; $1000.

Hartford, Conn.; John P. Nielson; one-story garage at 42 Temple street; $4000.

Hartford, Conn.; Rocco Branciere; one-story garage at 195 Front street; $2500.

Mack 5½-Ton Truck Operated by the White River Spruce Co., Operating in Washington, Which Hauls from 25,000 to 30,000 Feet of Timber Each Day.

New Haven, Conn.; Antonio De Nigris; one-story garage at 276 Putnam street; $1300.

New Haven, Conn.; I. A. Weiner; two-story garage, 50x60.

Waterbury, Conn.; Max Rosen; one-story garage, 22x50.

Waterbury, Conn.; A. M. Larson; one-story garage, 38x78; $12,000.

Waterbury, Conn.; D. E. Carroll; three-story garage, 78x90.

West Haven, Conn.; James D. Kauffman, 42 Church street, New Haven, Conn.; one-story garage and filling station, 60x116.

Wilmington, Del.; William Francis, care Brown & Whiteside, Inc., Du Pont building; 1½-story garage, 30x40; $5000.

Washington, D. C.; Maurice B. Koman; one-story garage at 2118 Champlain street; $9000.

Palm Beach, Fla.; Frank H. Clements; one-story garage; $12,000.

St. Petersburg, Fla.; Boardman, Vogel & McCrea; one-story garage, 80x110; $4000.

Boise, Ida ; John Morrison; one-story garage; $7000.

Hailey, Ida.; J. L. Fowler Auto Co.; one-story garage, 48x120.

Anderson, Ill.; Central Garage; one-story garage; $8000.

Chicago, Ill.; C. M. Almquist, 35 South Dearborn street; one-story garage, 65x100 and 50x193; $25,000.

Marion, Ill.; A. H. Hope; one-story garage, 144x287; $20,000.

Moline, Ill.; Whitsitt & Schulz, People's Bank building; one-story garage; $5000.

Peoria, Ill.; Dickerson-Lehmann Co.; one-story garage, 70x172.

Peoria, Ill.; John Linn; one-story garage, 100x125.

Warren, Ill.; W. C. Stackbole; one-story garage, 60x106; $20,000.

Anderson, Ind.; George W. Pierce; one-story garage; $8000.

Waterloo, Ind.; Terminal Electric Co.; one-story garage; $8000.

Keokuk, Ia.; Auto Sales Co.; two-story garage, 90x100; $25,000.

Shenandoah, Ia.; George Hill; one-story garage and vulcanizing shop, 62x110; $15,000.

Belle Plaine, Kan.; Harry Nessly, Mulvane, Kan.; one-story garage, 40x46; $8000.

Neodesha, Kan.; Bert Alley; one-story garage, 75x120.

Seneca, Kan.; Thomas Garage; one-story garage, 44x88.

Hickman, Ky.; Ward & Parrish; one-story garage, 66x85; $10,000.

Louisville, Ky.; Standard Oil Co.; one-story garage at 426 W. Bloom street; $11,000.

Louisville, Ky.; Louisville Lead and Color Co., 223 North 15th street; one-story garage, 30x90; $10,000.

Baltimore, Md.; Northeastern Amusement Co.; one-story garage, 24x70, at 1905 E. Hoffman street.

Baltimore, Md.; Crown Cork and Seal Co.; two-story storage garage, 100x150; $20,000.

Boston, Mass.; F. A. Decker Co.; one-story garage, 69x89.

Boston, Mass.; Samuel Altman; one-story garage, 100x170, at 726 Commonwealth avenue; $60,000.

Fitchburg, Mass.; Bushing Holding Co.; one-story garage, 35x112; $7500.

Greenfield, Mass.; Greenfield Baking Co.; two-story garage, 50x50.

Lawrence, Mass.; Mrs. Gray, care Ashton & Huntress, 477 Essex street; one-story public garage, 46x118; $20,000.

Medford, Mass.; John Pierce; one-story garage, 25x60, at 98-100 Winchester street; $2000.

Nantucket, Mass.; Killen Brothers; one-story garage, 50x75; $5000.

New Bedford, Mass.; C. Henry Murphy, 670 Purchase street; one-story public garage, 50x50.

New Bedford, Mass.; J. F. Bertram; one-story garage, 30x70; $2000.

Waltham, Mass.; David Levison; one-story garage, 40x70; $2200.

Waltham, Mass.; William M. Caldwell; one-story garage and sales room, 52x130, at 553-563 Main street; $10,000.

Worcester Mass.; Alina Peterson, 166 Belmont street; one-story garage, 42x88; $8000.

Worcester, Mass ; George L. Brownell; one-story garage, 65x100, at 74 Market street; $4000.

Detroit, Mich.; I. J. Colford, 360 East Jefferson avenue; one-story public garage, 42x94; $4500.

Detroit, Mich.; Louis Smilausky, 202 Chamber of Commerce building; one-story garage, 25x40; $2000.

Detroit, Mich.; Charles Bohn Foundry Co., 738 Hart avenue; one-story garage, 30x80; $10,000.

Kansas City, Mo.; D. D. Swearingen, 3552 Broadway; one-story garage, 50x115.

St. Joseph, Mo.; Swift & Co.; one-story garage, 54x120; $20,000.

St. Louis, Mo.; Parker-Russell Co.; one-story garage; $1800.

St Louis. Mo.; Samuel Koplar; one-story garage; $1250.

Billings, Mont.; Billings Garage; one-story garage, 50x100.

Petersburg, Neb.; George Markers; one-story garage; $3500.

Bayonne, N. J.; Daniel G. Townsend, 122 Broadway; one-story garage; $1500.

Newark, N. J ; R. M. Hauschka, 595 Clifton avenue; one-story private garage, 22x22; $2000.

Newark. N. J.; Stephen A. Gettwalt, 111 South 10th street; one-story garage, 40x50; $2000.

Newark, N. J.; Frank Zarro, 423 Bloomfield avenue; one-story public garage, 38x40; $3000.

Newark, N. J.; Richard Reininger; one-story garage, 18x84, at 20 Branford place; $4000.

Passaic, N. J.; J. J. O'Leary, 500 Bloomfield avenue; one-story public garage, 60x71; $5000.

Trenton. N. J.; Lewis C. Caso. Jr.; one-story public garage, 18x200; $4500.

Vineland. N. J.; Cresci Brothers; one-story garage, 52x130; $16,000.

Brooklyn, N. Y.; F. Law; one-story garage, 20x30; $1500.

Brooklyn, N. Y.; Aaron Benjamin, 1464 Eastern Parkway; one-story public garage, 80x100; $25,000.

Brooklyn. N. Y ; David Smith & Sons, 129 Fifty-first street; two-story garage, 27x53; $2000.

Brooklyn, N. Y.; David Kramer, 634 Hopkinson avenue; one-story garage, 25x28; $2000.

Brooklyn, N. Y.; Paul Frankel, 1703 Avenue G; one-story garage, 119x211; $2000.

Brooklyn, N. Y.; Rubin Cohn, 235 Park avenue; two-story garage, 49x50; $25,000.

Brooklyn. N. Y.; Kean Construction Co., 501 W. 145th street, New York; one-story garage, 100x145; $3000.

Brooklyn, N. Y.; M. C. K. Construction Co., 2168 Dean street; one-story garage, 25x100; $2500.

Brooklyn, N. Y.; Goel Construction Co., 2582 Bedford avenue; one-story garage, 18x20; $8000.

Brooklyn, N. Y ; George Konzinger, 120 Willoughby street; one-story garage, 20x58; $5000.

Brooklyn, N. Y.; Charles Larsen, 743 39th street; one-story private garage, 25x100; $6000.

Brooklyn, N. Y.; W. A. Dennison, 154 Lenox road; one-story private garage, 20x20; $2000.

Brooklyn, N. Y.; Annie Emalkur, 203 Sands street; one-story garage, 30x50; $3500.

Brooklyn, N. Y.; John Farina, 293 21st street; one-story public garage, 50x104; $12,000.

Brooklyn, N. Y.; Marie Ferrone, 51 North Elliot street; one-story garage, 32x75; $6000.

Brooklyn, N. Y.; R. Bridgette, 125 Prospect Park west; one-story garage; $25,000.

Edgemere, L. I., N. Y.; James Roth Contracting Co., 826 Nostrand avenue, Brooklyn; one-story garage, 52x120; $7500.

New Rochelle, N. Y.; R. E. Weise, Broadview Park; two-story garage, 20x30; $3500.

New York, N. Y.; H. G. Steinmetz; one-story garage, 49.15x979; $10,000.

New York, N. Y.; Wilson & Zerbst; one-story garage, 50x90, at 517-519 West 21st street; $50,000.

New York, N. Y.; Rothardt Garage, Inc.; one-story garage, 104 6x163; $22.000.

New York, N. Y.; Harry Aronson; one-story garage, 50x100, at 238-240 East 45th street; $10.000.

New York, N. Y.; William Connell; one-story garage, 70x100; $30,000.

New York, N. Y.; John Cullen Estate; one-story garage, 75x100; $67,000.

New York, N. Y.; Interstate Garages; one-story garage, 250x350.

New York, N. Y.; Madeline Realty Co.; one-story garage, 99.11x125; $40.000.

New York, N. Y.; Jacob and Isidor Kaufman, 206 Division street; one-story garage, 50x100; $10,000.

New York, N. Y.; Michael Maisck, 114 MacDougal street; one-story garage; $10,000.

New York, N. Y.; Carta Realty Corporation, 60 Broadway; one-story garage, 97x126; $30,000.

New York, N. Y.; C. Meyer, 141 E. 72nd street; one-story garage; $25,000.

New York, N. Y.; Z. and W. McGuire; one-story garage, 69x100; $15.000.

Schenectady, N. Y.; David Kosozky, 475 South Centre street; one-story garage, 43x48; $5000.

Utica, N. Y.; William F. Carroll; one-story garage, at 1602 Sunset avenue; $1000.

Casselton, N. D.; Elefson Auto Co.; one-story garage, 50x111.

Zanesville, O.; F. Wilking; one-story garage, 38x41; $9000.

Boynton, Okla ; J. F. and P. B. Wolfinger; one-story garage, 42x50; $7000.

Astoria, Ore.; Wostern Motor Car Co.; one-story garage; $30,000.

North Bend, Ore.; Gorst & King Auto Co.; one-story garage, 100x100 at Washington and Sherman streets; $25,000.

Cambridge Springs, Pa.; Robert Gable; one-story garage, 50x120; $5000.

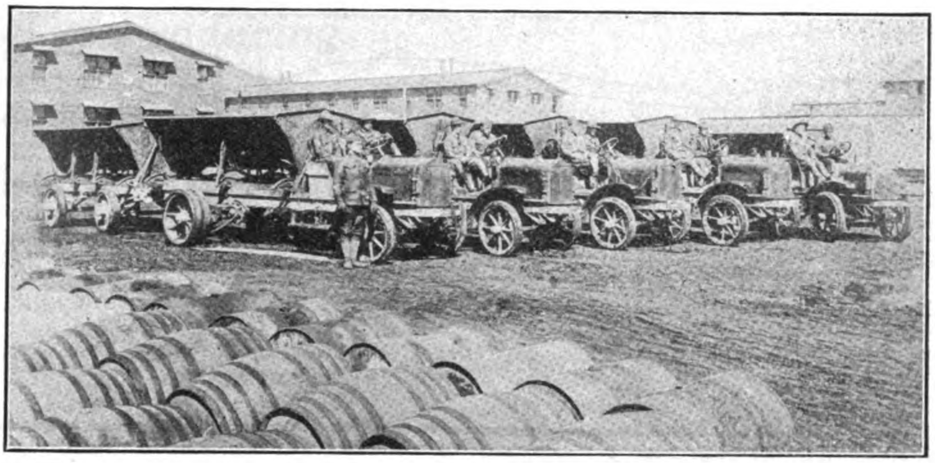
Erie, Pa.; Joe Abels; one-story private garage, 25x50; $2500.

Harrisburg, Pa.; Samuel H. Zimmerman; one-story garage at 1321 North Sixth street; $1000.

Lemoyne, Pa ; Irvin J. Heighes; two-story garage, 44x75; $5000.

Loganton, Pa.; C. F. Royer; one-story garage, 45x70; $5000.

Osceola Mills, Pa.; H. G. Danike and John A. Dempsey; two-story garage, 25x60; $2500.



Fleet of 10 White Trucks, Equipped with Lee Side Discharge Bodies, Used by the Sanitary Department of One of the Principal Army Cantonments.

Pittsburgh, Pa.; David Jamieson; one-story garage, 55x150, at Forbes street and Murray avenue; $14.000.

Ridley Park, Pa.; T. P. Ward, 226 Henderson avenue; two-story garage, 20x25; $2000.

St. Mary's, Pa.; Frank A. Kaul; 2½-story private garage, 24x36; $5000.

Auburn. R. I.; Harold W. Seamans; one-story garage and sales room, 45x45, at 70 Rolfe street.

Providence, R. I.; Lena Gesler; one-story garage, 20x77.

Providence, R. I.; John Lenihan; one-story garage, 30x60.

Brownwood, Tex.; Davis Smith; one-story garage, 100x120; $17,000.

Lewisville, Tex.; Highway Garage; one-story garage; $10.000.

Sulphur, Tex.; Hopkins Motor Co.; one-story garage, 59x137; $14,000.

Clarksburg, W. Va.; W. C. Osburn; one-story garage, 62x70; $6500.

Wheeling, W. Va ; Charles H. Keeson; one-story garage, 25x 66.

CONTRACTS AWARDED.

Washington, D. C.; R. P. Whitty Co., Union Trust building; two-story garage; for H. B. Wilson, 715 Eighth street, N. W.; $50,000.

Chicago, Ill.; Cyril Jira, 2701 West 51st street; one-story garage, 25½x50; $5000.

Indianapolis, Ind.; E. G. Spink Co.; one-story garage, 48x80; for Penn Realty Co.; $2500.

Pittsburgh, Kan.; H. A. McGuire; one-story garage, 100x170; $15,000.

Wichita, Kan.; George Siedhoff, Skaer apartments; one-story garage, 22x168; for A. L. Derby, 212 Sedgwick building; $7000.

Louisville, Ky ; C. A. Koerner & Co.; one-story fireproof garage, 30x100; for Louisville Lead and Color Co., 223 North 15th street; $8000.

New Orleans, La.; I. N. Keith; two-story garage, 23x42; for J. H. Yaunt.

Detroit, Mich.; A. A. Albrecht Co., 1130 Penobscot building; two-story garage, 66x130; for John M. McKerchy, 664 Woodward avenue; $40,000.

Detroit, Mich.; W. E. Wood Co., 1805 Ford building; one-story garage, 29x64, for Lee Cartage Co., 1790 Scotten avenue; $6000.

Camden, N. J.; Thomas H. Miller, 123-127 West Ninth street; one-story private garage, 34x42; for R. M. Hollingshead & Co.; $4500.

Klasbey, N. J.; E. Turner, 34 East 28th street, New York; one-story garage, 30x32; for General Ceramics Co., 50 Church street, New York; $4000.

Newark, N. J.; Pellegrino Pellecchia, 21 Mt. Prospect avenue; one-story public garage; for Sol Epstein and I. Rosenberg; $10.000. Lessee, Black & White Taxi Co., 9 N. J. R. R. avenue.

Trenton, N. J.; H. H. Katzenbach, 31 East State street; 1½-story private garage, 22x34; $4000.

Trenton, N. J.; William B. Cadwalader, 329 Garfield street; one-story garage, 38x94; for Frank Del; $4000.

Brooklyn, N. Y.; John Volpe & Co., 718 Union street; one-story garage, 20x20; for Rutger Bleecker, northwest corner Park place and Brooklyn avenue; $2500.

Cleveland, O.; National Malleable Castings Co., 7706 Platt avenue; one-story garage, 123x164; $35,000.

Cleveland O.; Webber Co., 1609 West 25th street; 1½-story garage, 28x48; for T. H. Treadway, care Peck, Stowe & Wilcox Co., 8917 Euclid avenue; $7800.

Cleveland, O.; Webber Co., 1609 West 25th street; one-story private garage, 30x81; for Jacob Lamb Baking Co., Lorain and West 50th streets; $5000.

Dayton, O.; Bess & Co.; one-story public garage, 30x54; $6000.

Enid, Okla.; Grant Buxton; one-story brick garage with stone trimmings; for J. S. Graham; $3500.

Toledo, O.; Gettine Kopitke Co., 6 Messenger building; one-story garage, 22x24; for H. W. Blevens, 2040 Scottwood avenue; $2000.

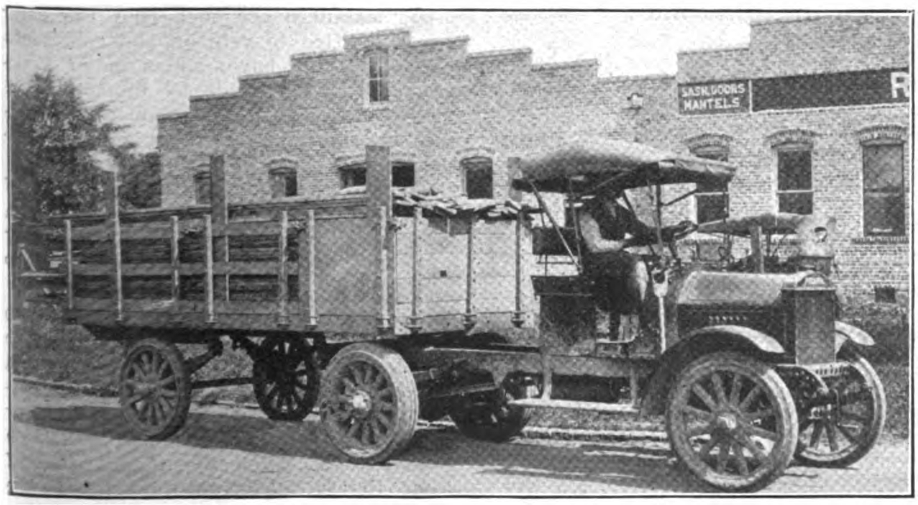
Coatesville, Pa.; E. P. Gibney, 643 North Main street; one-story community garage, 25x80; $5000.

Lancaster, Pa.; H. L. Wiant, 544 Mill street; one-story private garage, 50x50; for S. R Zimmerman, 62 North Duke street; $5000.

Philadelphia, Pa.; John J. Hurley; one-story brick garage, 21.6x23, east side Cresson street, south of Jamestown avenue; for Maurice Duffy; $550.

Philadelphia, Pa.; C. M. Swartley; one-story brick garage, 16x26, at 1934 Wensley street; for David M. Kennedy; $800.

Philadelphia, Pa.; H. W. Hartman, 4812 Chestnut street; one-story garage, 55x100; for Atlantic Fuel Co., 5206 Whitby avenue; $7500.



Federal Truck Used with a Semi-Trailer by the W. M. Wallace Lumber Co., Fayetteville, N. C.

Buying Goods After Inspection and Getting Something Different

By ELTON J. BUCKLEY.

The question involved in the letter which I reproduce below often arises in the experience of merchants, and is liable to arise anywhere at any time. The question is this:

When a merchant buys goods after partial inspection, relying upon the seller's statement that they are all of a certain grade or quality, what is his status when he finds, upon delivery and after he has paid for them, that they are not what he thought they were, and what should he do in order to protect himself?

Last November the writer went to Illinois and purchased three car loads of broom corn from H. & Co. Two we had shipped immediately.

The third car, which was stored in their warehouse there at the time, appeared to be a nice block of pea green, self-working standard Lindsay brush. This was piled in one corner of the warehouse, three bales high.

The writer examined bales in the front rows and a few on top and same appeared to run about as front rows. We asked Mr. Watkin, who had charge of the warehouse, whether the corn in that block ran the same all through as the front rows. He said it did.

On the strength of his assertion we bought this block, which consisted of 62 bales, and in addition to this we bought about six bales of a good grade of Illinois corn, running to hurl, to make a full car.

We had H. & Co. carry this corn for us, paying interest, storage and insurance until last month, when we had it shipped East. Same reached us about 10 days ago.

It was sent draft attached to bill of lading, and of course we lifted the draft, expecting the corn to be just what we bought and what was billed to us, viz., 62 bales of self-working Lindsay standard corn.

When the first load was brought in we were very much surprised on account of its short, coarse red and yellow appearance. However, we thought there might have been a few bales of that in the pile, and probably the rest of the car would be running nicer. However, we continued unloading, and found that fully half of it was very undesirable stock, and among the 68 bales there was but one bale of pea green corn among it.

It appears to us as if they had sold our car of carn and substituted one of considerable less value. We telegraphed H. & Co., therefore, that there was an error in the shipment and they should come look at it. They wrote to their former manager at the cantonment and he informs them that the writer was all around the corn and on top of it and knew what he was buying. This, of course, is a false statement, because the corn was piled in a corner and I could not get all around it nor see through the pile, as there was none of it pulled down to look it over. The writer simply took the manager's word that it was the same all through the pile as the outside rows.

Any person acquainted with broom corn looking at this can readily see that the corn is no comparison to what their letters and invoice calls for, namely, 62 bales self-working Lindsay standard corn.

The price paid for the Lindsay corn was a fair one at that time, for that class of brush, namely, 20 cents per pound.

We are of opinion that they had an opportunity to sell it for more money, and no doubt substituted something cheaper for us.

What can we do in this matter in order to get back some of our wasted money?

ACME BROOM WORKS.

Hamburg, Pa.

The truth of this case lies between these two hypotheses:—

1. H. & Co. did not ship the corn this correspondent bought, but a different and inferior lot; or

2. H. & Co. did ship what the correspondent bought, but owing to his failure to make a thorough examination before buying, it did not turn out as good as he thought.

Any buyer who buys goods after inspection, and who is shipped entirely different and inferior goods, can of course reject them at once, because they are not what he bought. If he has paid for them under the false impression that they were what he bought, he can sue to recover his money, and he will get it without doubt if he can make out his case. And more than this, if the seller induces him, or even allows him, to pay a draft under the implied false representation that the goods are what he bought, he, the seller, is guilty of obtaining money under false representation and can be prosecuted criminally.

But suppose the second theory is the correct one here, viz., that the goods shipped were actually what were bought, but upon more careful examination they turned out to be poorer than the buyer thought they were. Does the fact that he bought after being given a chance to examine, and after he actually did examine to a certain extent, prevent him now from rejecting? In other words, does that familiar and much abused rule, caveat emptor (let the buyer beware) apply in this case?

In sales of this sort, where it is hard to get at the greater part of goods which are to be bought, the buyer often relies upon the seller's statement that the part not seen is like or equal to the part seen. If the buyer buys on the strength of that representation and later finds that the part not seen is not like or equal to the part seen, he can usually call the deal off on either of two grounds: 1, breach of warranty, or, 2, fraud. Here is the law of such cases in a nutshell:—

Fraudulent misrepresentations by the seller concerning the quality, character or soundness of the goods are ground for avoiding the contract, provided the circumstances are such that the buyer was entitled to rely on the representations. If the buyer relies on an examination or test made by himself or another, he does not rely on the misrepresentation and cannot depend on them.

Ordinarily when the buyer has equal means of forming his own estimation, representations of quality by the seller are not such as the buyer is entitled to rely on.

In other words, suppose I propose to buy some goods which lie open on a table before me. Nothing is concealed. It is not a case of buying on sample—the whole thing is right there under my eyes. I would not be entitled to rely on any representation by the seller there; I had the fullest opportunity to examine for myself.

(Copyright, September, 1918, by Elton J. Buckley.)

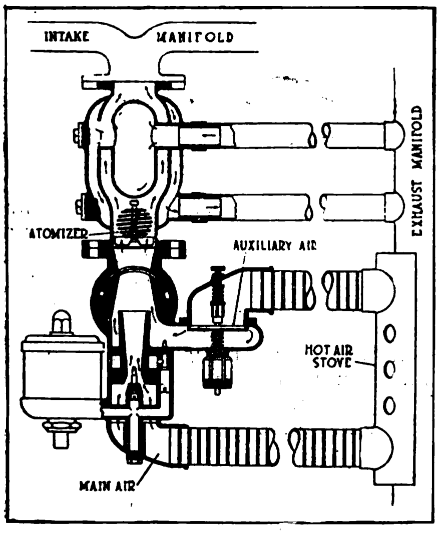
Deppe Engine Method of Producing Superheated Homogeneous Dry Gas

By W. P. Deppe.

The Deppe engine method covers the theory of producing superheated homogeneous dry gas before ignition, instead of after ignition, as has been done heretofore.

Our equipment consists of means for preheating air, carburetor for metering the air and oil, centrally opening throttle, venturi tube shape mixing chamber, acting as a combined throttle, final nozzle for mixture flow and as a sprayer directing the entire fuel charge into a revolving heli-coil mechanical mixer, then sheeting the mixture, to which is attached a special designed intake manifold, all patented or patents pending.

This entire outfit progressively heats the mixture from start to finish. In this method we produce a superheated dry gas mixture before passing to the cylinders, which acts in the cylinders on the intake and compression stroke as a true fixed gas.



Showing Deppe Method of Producing Dry Gas from Motor Car Fuels.

It does not condense on the intake stroke, nor precipitate on the compression stroke, due to the fact that we are working in dry gases, maintained inside the saturating limits of temperature and pressure. We work on the theory of making any fuel above the lubricating cut in fuel oil, which contains at least five per cent. of the liquid boiling below 200 degrees, to act like true gasoline, 76 degrees Baume, and above, in the ordinary wet mixture method.

Thus far we have been obliged to build but one standard outfit with a single carburetor adjustment, regardless of the size of the engines we have tackled. We have operated 18 horsepower Fiat, a rather small engine indeed, and are running the Liberty B motor truck with engine 4¾x6, also Waukesha tractor motors 4¾x6¾, with this single standardized outfit.

We have contended that no gas producing mechanism in a motor car should allow any individual to touch the meter adjustment under any circumstances. We also apply sufficient heat to take care of weather temperatures to 30 degrees below zero, and not too much heat for summer temperatures up to 120 degrees in the shade.

We run on ordinary commercial gasolines or half gasoline and half kerosene or distillates mixed in the same fuel tank. We also can handle what we look upon as the ultimate motor engine fuel, consisting of everything in crude oils from gasoline to, but not including, the lubricating cut. We use the same throttle control as the ordinary wet mixture method.

The points we wish to bring out are the facts that:

First—We have a standardized method for producing superheated gas mixtures out of any grade of refined motor fuels above the lubricating cut.

Second—We have a fixed carburetor adjustment.

Third—We have but one fuel tank.

Fourth—That our mixtures act like highly volatile true gasolines.

In developing our process of engine operation we have followed the suggestions of the Bureau of Mines as outlined by Dr. Dean, as follows:

"Perhaps no phase of the fuel situation has so interested automotive engineers as the use of kerosene in place of gasoline. Present market conditions are such that kerosene is of the cheaper petroleum products, and as it has already been demonstrated to work satisfactorily in internal combustion engines under certain conditions, there has been a great desire to render it available for general use in automobiles.

"The Bureau of Mines has had called to its attention many devices for the utilization of kerosene, but believes that mechanical development in this particular line is a mistake.

"The logical and reasonable way to utilize kerosene is not as such, but as a mixture with the gasoline produced with it in the refining of crude oil. In other words, attention should not be given to the utilization of kerosene, but to the utilization of petroleum distillates containing both the gasoline and kerosene fractions of crude oil.

"The utilizing in automobile engines of a type of fuel that contains the combined gasoline and kerosene fractions of crude petroleum would certainly double the available supply and even if all the other agencies working to that end failed the automotive engineers themselves would postpone for a long time the fateful day when their industry will be handicapped by not having available the material to feed engines after they have been produced."

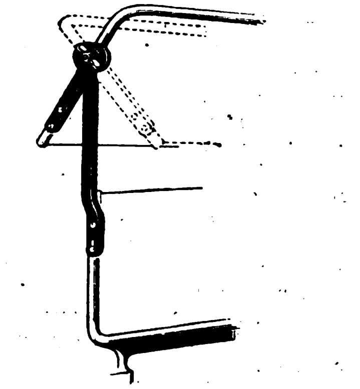
J. H. FAW, INC., ADDS LINE OF FUSES.

J. H. Faw, Inc., of 37 Warren street, New York City, have added an assortment of link fuses to their already extensive line of fuses and will be glad to furnish a chart showing what particular fuse is needed on any of the cars.

Mr. Faw states that the cost of progress is practical endeavors to so complete their lines that they will be adequate for the demands made by their dealers and jobbers. The use of link fuses has become sufficiently extensive to justify the addition of them to their line and they are now in position to offer complete fuse lines so that every possible demand may be met. They are sold both in bulk as well as complete assortments.

EXTENSION SWIVEL HINGES FOR FORD WINDSHIELDS.

The Extension Swivel Hinges for Ford windshields, which have been placed on the market by the General Auto Specialty Co., Inc., 151 Berkeley St., Boston, Mass., are a welcome accessory for the thousands of Ford owners who would be glad to enjoy the advantages of the "rain vision" type of windshield without incurring the expense of an entirely new frame and glass. With the use of these hinges the upper half of the glass becomes adjustable to any position either forward or backward and it can be so set that the operator can see the road in rain or storm without having his vision obscured by the accumulations of moisture or sleet on the shield. It also affords a means of properly regulating the ventilation in front of the car and will direct a current of air as desired, keeping the legs cool and the dust, bugs and other flying objects from the eyes.



Ford Windshield Transformed Into "Rain Vision" Type.

The change can be made in five minutes with the use of a screw driver, no drilling or machine work being necessary. After the old hinges and top strap loop have been taken off the Extension Swivel Hinges are put on with the same screws in the same holes in the old windshield frame and then the top strap loop is put under the upper screw in the lower half of the shield. There are three different models, as follows: A for 1912, 16, 17 Fords; B for 1913, 14 Fords, and C for 1918 Fords. Price, $3.

American Tire Filler Industry Forms Organization

Makers Meet in Chicago to Show Need of Their Product in the Tire Conservation Movement.

The American Tire Filler Industry (Inc.) was organized as the result of a convention of representatives of the principal concerns in this country manufacturing tire filling held at the Congress Hotel, Chicago, Sept. 15-18. There are about 25 different concerns in this country producing fluid, semi-fluid or solid material for filling tubes intended for pneumatic tires, the purpose of the fluid or semi-fluid compounds being to fill punctures of tubes by exudation and retain the filling, and of the solid fillers to afford a sufficient degree of resiliency and yet be free from the delays, inconvenience and expense of tire deflation and inflation, changes and repairs.

The manufacturers of these fillers maintain that while the same ratio of resiliency obtainable with air filled tires is not realized with the use of tire filling, there is sufficient shock absorption to insure the comfort of passengers and protection of freights and to much reduce the mechanical wear from vibration. They maintain further that the insurance against tire destruction from puncture, delays, labor of changes and the reduction of repair cost compensates for any lessened comfort while riding. Statement is made that tire filling will insure a uniform degree of inflation and even wear of tires, that there is little probability of rim damage and the number of tubes required is much less than when air is the inflatant. There is less need of carrying spare casings and tubes, changes are not necessary until shoes are completely worn, and many of the accessories used with tires, such as valves, pumps, gauges, patching sleeves, jacks, etc., are not necessary for either passenger cars or trucks equipped with filled tires.

The convention held open sessions at which were present representatives of the War Department, the American Red Cross, Y. M. C. A., Salvation Army and numerous economy, labor and defense boards. The convention was opened by Franc D. Mayer of the Essenkay Products Co., Chicago, who stated among other things that very large savings could be accomplished by inflating automobile vehicle tires with resilient filler instead of air. He held that the use of filler doubled the life of tires, which meant a saving of 50 per cent. of the cost. Basing estimate on 4,000,000 passenger cars in use in the United States and assuming eight tires a year for each, 32,000,000 tires were needed annually, and at an average cost of $20 a tire this meant $640,000,000 spent yearly for tires for passenger cars, excluding the expense of spare tires, rims, tubes, jacks, pumps, etc. A saving of 50 per cent. would mean $320,000,000.

He further estimated that $260,000,000 is spent for accessories for tires, of which $193,000,000 was for tubes alone. Adding the savings of $320,000,000 and $260,000,000 made a total of $580,000,000, which he believed could be saved in very large part by the use of tire filler instead of air, basing this on 4,000,000 cars, and as a matter of fact the total number of vehicles of all kinds using pneumatic tires considerably exceeds 5,000,000.

One phase dealt with by numerous speakers, some of whom had served on the battlefields in France, was the possibility of equipping ambulances with filled tires to obviate the delays from differing damage that necessitated changes, or driving on deflated casings that was destructive of shoes, tubes and rims, increased the suffering of wounded or sick, and decidedly retarded movement of vehicles that were frequently needed in far greater numbers than could be supplied.

The conclusions of the convention may be summarized as follows with reference to the use of tire fillers:

(a) Such use reduces the likelihood of ambulances, trucks or officers' cars in the United States army service being delayed under fire or at other critical time.

(b) Such use would prevent delay of munition shipment by trucks.

(c) Such use would facilitate food production and transportation.

(d) Such use would release labor now directed to needless production, obviate waste of labor, costing in the aggregate a large amount of money, and minimize the labor necessary for repairing.

(e) Such use would greatly lessen the demand for rubber for tires and would release rubber now used for other essential requirements.

The convention believed that the government needed tire filler in every branch of its transport service, both in this country and abroad. The convention approved a resolution offering to the government the plants, products and experience of the members of the American Tire Filler Industry, Inc., in conserving life and materials now lost from tire damage or destruction.

The convention elected the following officers for the coming year: President, Franc D. Mayer, Essenkay Products Co., Chicago; first vice president, Frank A. Hager, Universal Tire Filler Co., Portland, Ore.; second vice president, Lee W. Lockwood, Dahl Punctureless Filler and Rim Co., Minneapolis, Minn.; third vice president, W. W. Major, National Rubber Filler Co., Midlothian, Tex.; secretary, C. P. Umstot, Peerless Tire Filler Co., Chicago; treasurer, L. G. Harris, Wolverine Tire Cushion and Accessory Co., Detroit; directors, the officers and J. Wolff, National Synthetic Tire and Rubber Co., New York, N. Y., and C. G. Schwarz, Panama Rubber and Equipment Co., St. Louis, Mo.

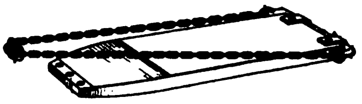
DEALER TAKES ON HEAVY STOCK OF PARTS FOR CUSTOMERS.

The American Automobile Co., distributors of Liberty cars at Tacoma, Wash., maintaining that motor cars as a necessity, must be kept in operation at all times, has stocked its service department with several thousand dollars worth of spare parts.

"Motor car parts must advance in price with automobiles," says Herbert E. Stimson, president of the company, "and while we have tied up a lot of money in keeping a big stock, we feel that we owe it to our many customers to protect them as much as possible against increase in prices, besides facilitating service."

MOORE'S MUD HOLE SKID.

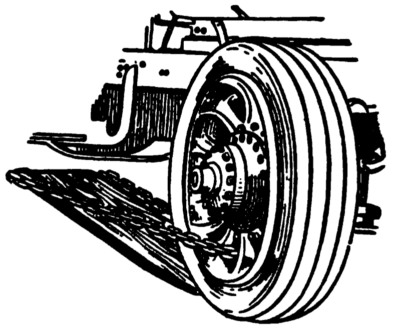
A patented device, known as Moore's Mud Hole Skid, manufactured by Langley & Schultze, Louisville, Ky., is, as the name implies, intended for use with any power vehicle, utilizing the driving effort to extricate it wherever traction is not normally obtainable. Statement is made that it is an exceptional utility with any truck, because it can be carried and be always available, and that it will economize time, labor, fuel, tires and perhaps repairs. The accompanying illustration shows the device and manner of using it. With a pair of the Moore skids any emergency can be met.



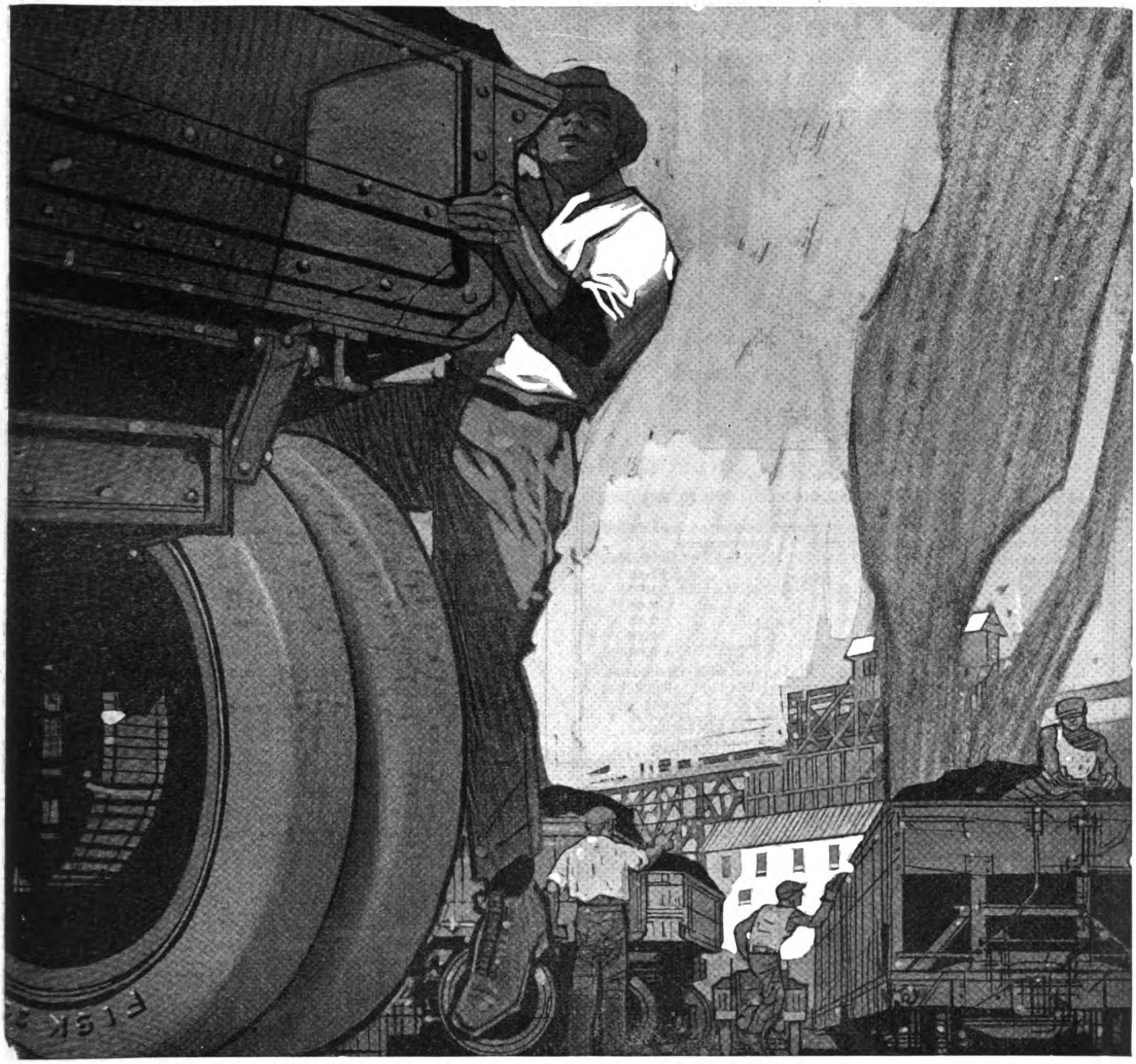
Moore's Mud Hole Skid.

The skid is a section of plank with one end tapered so it may be forced into mud or sand, that is strengthened by a binding band of heavy metal. At the other end of the plank, retained by two stout clamps, is an iron bar, the ends of which are turned at right angles to the main section and carry rings. One end of a chain more than twice the length of the skid is secured to one of these rings, and at the other end of the chain is a hook.

When used the tapered end of the skid is forced under the tire of a driving wheel that has no traction. The chain is carried between spokes back of the axle center so there will be draft upon it as the wheel is turned. The other end of the chain is hooked to the ring at the broad end of the skid, and the slack taken up. When the engine is started the turning of the wheel will wind the chain on the brake drum and the wheel will roll along the skid. After the wheel is well on the skid and traction is positive the chain is cast off.



Mud Hole Skid with Chain Attached to Wheel, This Giving Positive Traction.



To PREVENT a coal famine it is estimated that 720,000,000 tons must be mined this year and delivered to consumers — 60,000,000 tons a month.

"There is now a Fisk Tire for every motor vehicle that rolls"

MOTOR TRUCKS can do their part to prevent a coal famine by making quick deliveries from the yards to householders.

TRUCKS cannot afford to lose time. Every minute and every mile counts.

GOOD TIRES prevent delays—

DEPENDABLE TIRES are built to wear, and meet the rugged conditions encountered in actual use.

FISK SOLID TIRES *are* dependable. When you need truck tires—buy FISK.

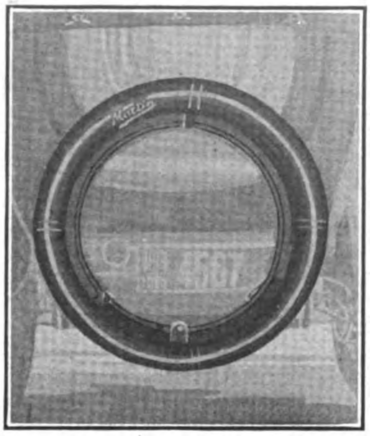
FISK SOLID TIRES

To Tire Dealers: Write at once to The Fisk Rubber Company of N. Y., Chicopee Falls, Mass., Dept. Q, and get full information about Fisk Solids and the liberal Fisk Dealer proposition

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



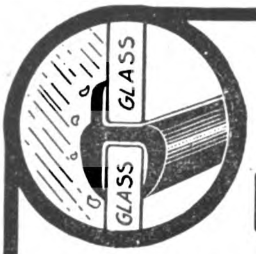
The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.
Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.30
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts.
The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio



STOPS THAT LEAK
Thru the Windshield

The McCormick-Allmand Patented Weatherstrip is a necessity for every car. Now is the time it sells like hot cakes. Big profits.

McCORMICK-ALLMAND —WEATHERSTRIP—
PATENTED

made of rubber for both regular and off-set type (Ford Cars) windshields. Closes space on windshields making it absolutely watertight. Fits any space or thickness of glass. Easily put on and off.

Write for Dealers' Proposition

GLASS
GLASS

Robinson Mfg. Co. 502 Lincoln Bldg.
Louisville, Ky.

Do Tiring Repairing

—but use only the most approved outfits

Akron-Williams

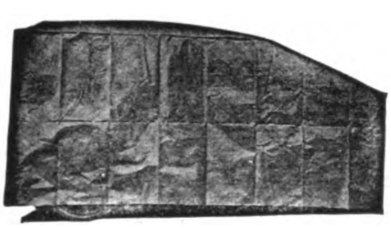
TIRE REPAIR EQUIPMENT

AKRON-WILLIAMS A-W PRODUCTS

Designed with the help of the foremost tire engineers; used, recommended and sold by all leading tire companies.

An outfit for every size shop—send for new descriptive catalog.

The Williams Foundry & Machine Co.
Ash Street, Akron, Ohio.



KENNEDY AUTO STORAGE COVERS

Furnish efficient and economical protection for cars in dead storage. They are made of heavy, durable paper in standard sizes to fit any cars.

MADE ONLY BY

THE KENNEDY CAR LINER & BAG CO.
SHELBYVILLE, IND.

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

Strengthen Your Advertising Literature

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

Ross-Gould Mailing Lists St. Louis

Burke
Automobile Products

Automobile Devices Company

Sole Manufacturers

Real Estate Trust Building, Philadelphia
First National Bank Building, Chicago
2010 Broadway, New York

BUNTING BEARING BRONZE

BUNTING CORED BARS

The unusually low co-efficient of friction of Bunting Bearing Bronze puts it in a class by itself, which spells satisfied customers and increased sales. Secure your share of this business by supplying yourself now with Bunting Cored Bars. Always allow 1-16" for inside and outside finish.

All leading jobbers
Ask for catalog N

TheBuntingBrass & Bronze Co.
727 SPENCER STREET
TOLEDO, OHIO.

BUNTING BEARING BRONZE

IT'S STANDARD

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx Weight
A	1	½	12	2
B	1¼	½	12	3½
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15¾
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20

Do As We Say And Make Big Money

Open a Tire Repairing Shop. All the work you can do. Big profit on every job. We give instructions, sell you complete equipment and tell you how to start.

We show you everything, send you names of men formerly working for small pay; now doing flourishing business. Tire Factories say we have the only vulcanizer that operates upon CORRECT principle—that repairs tires exactly as they were made—

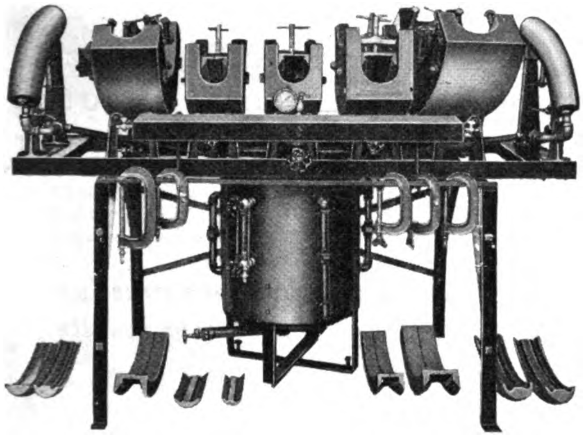
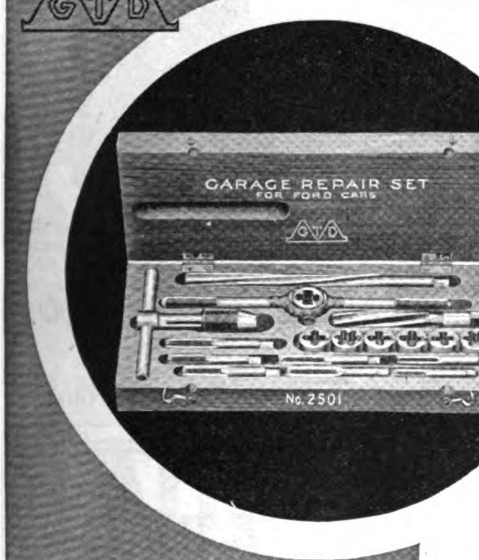


Illustration shows Vanderpool 5 cavity model that does every kind of repairing ($100.00 worth a day). Also made in 2 and 3 cavity (smaller) size.

VANDERPOOL VULCANIZER now used by veteran tire repairers after trying all other makes. Cheapest to operate. ***Pays for itself.*** 5 Cavity Model does $100 worth of work a day. (Smaller 2 and 3 cavity sizes also.) Millions of tires now in use and need constant repairing. You cannot fail. Write us at once for ***Tire Repairing Manual*** and full particulars. Biggest money-making business now open to you. Write today.

In Answering Address Department H.

WM. VANDERPOOL CO., SPRINGFIELD, OHIO



For "Every Other Car"

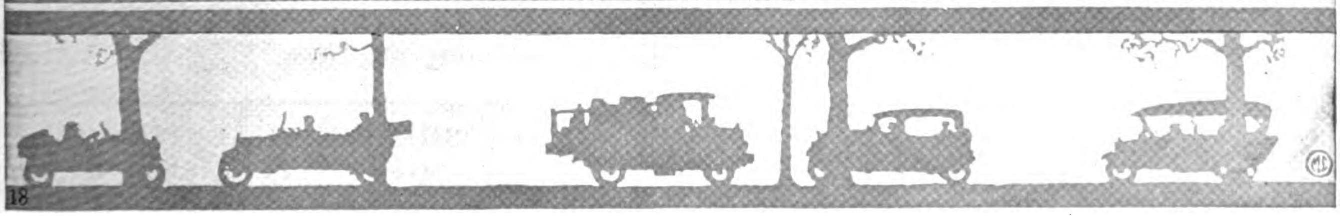
Here is a complete Automobile Screw Plate for Ford cars, consisting of Taps, Dies, Reamers, Stocks, Tap Wrenches fitted for the requirements of the Ford. It is called a Garage Repair Set, but is equally valuable to the dealer and car owner—in fact every one who has occasion to care for a Ford car can use and needs this set. It is furnished in a well made wooden box, handy for general use and to carry on the road to repair jobs.

As Ford led in standardized production of automobiles, so has G. T. D. led in the standardization of screw threads. This set consists of selected G. T. D. products to fit the Ford requirements. It is a sound investment, as proven by the large numbers sold and in use.

On sale by the best dealers—write us for particulars and catalog.

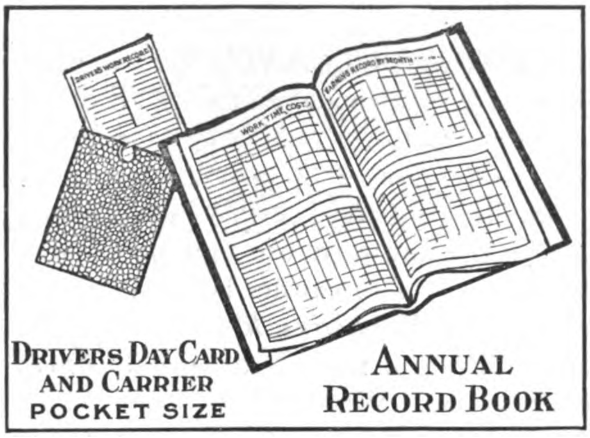
GREENFIELD TAP & DIE CORPORATION
Greenfield Massachusetts, U. S. A.

New York, 28 Warren St. Chicago, 13 South Clinton St.
Canadian Plant, Wells Brothers Company of Canada Limited, Galt, Ontario.



A Business Man Must Know His Operating Costs

Very few truck owners know what it costs to operate their trucks. Hardly any know what their vehicles actually earn.


Drivers Day Card and Carrier Pocket Size
Annual Record Book

Send us $6 and we will ship by express collect a complete motor truck record system. This includes as well an annual subscription to MOTOR TRUCK, the leading authority on highway haulage.

This system includes an annual record book, 350 day cards and a driver's carrier for the day cards. The system is complete and good for one year. Nothing more is needed or necessary.

No need to ask for details. All instructions are supplied with the system. It will fit in any business, good for any make or type of truck and it is 100% efficient.

Anyone can start and maintain this system. A girl or boy clerk can keep the records of one or 100 vehicles. One simple form that you can buy or have printed would cost more than $6.

If you want to keep a POSITIVE detailed record of your truck costs and a POSITIVE detailed record of your truck earnings, this is the one complete, simple, practical and almost self-operating system compiled.

Why not start today and operate your trucks on a business basis. You never can do this until you KNOW your costs.

Record Department

MOTOR TRUCK

Pawtucket, Rhode Island.

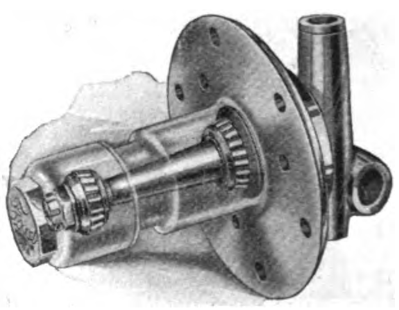
The **AUTOMOBILE JOURNAL**

Is the oldest Automobile magazine published in America devoted wholly to the owners of passenger cars.

A quality magazine with prestige and circulation that brings results to advertisers.

TIMES BUILDING
PAWTUCKET, R. I.

STOP FORD BEARING TROUBLE



NATIONAL BEARINGS SERVICE CO.
WRIGHT TAPER ROLLER BEARINGS
Replacements for all Standard types of Bearings
PHILADELPHIA NEW YORK

THE MOTOR TRUCK

Published Monthly The year $2; the copy 20c

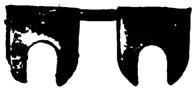
A magazine for business men devoted to the promotion of highway haulage efficiency. It is the national authority of vehicular transportation. . . . .

AUTOMOBILE JOURNAL PUB. CO.
Times Building Pawtucket, R. I.

Fawsco Automobile Fuses

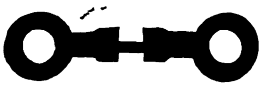
NEW NUMBERS—LINK FUSES

List Price - - - - - - Each $.18

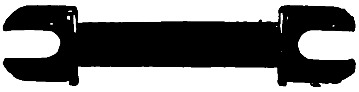


21 A

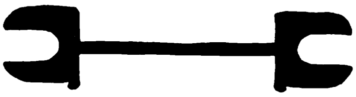
22 A



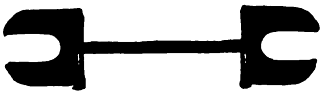
15 A



20 A



17 A



16 A

For following Cars:

Abbott Detroit	21 A	Dorris '13	17 A	Pullman, '15, '16	22 A
Auburn, '17, '18	16 A	Excelsior	16 A	Splitdorf Starters	17 A
Appleco Starters	17 A	Hollier	17 A	Velie '16	15 A
Buick	20 A	Mitchell '16	17 A		

Our New Assortments contain these Link Fuses and are most necessary to

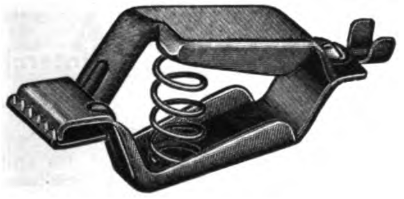
UP-TO-DATE SERVICE ON FUSES

No. 1 Assortment contains 114 Fuses Retail Value $11.30
No. 2 Assortment contains 240 Fuses Retail Value $21.20

An interesting profit is shown to both dealers and jobbers. Ask for our literature.

J. H. FAW, Inc. 37 Warren St., New York

UNIVERSAL BATTERY CLIPS



Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals. **No. 21-A—lead plated—1⅛" spread of jaws.**

Sample mailed postpaid for 15c in stamps.

Single Lots, Each 20c. Lots of 10, Each 15c.
Lots of 100, Each 13½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.

ADAMSON

VULCANIZERS

The Only Complete Line

MODEL "E" 5-Minute Vulcanizer repairs tube punctures—Price $1.00 complete.
MODEL "U" repairs tread cuts and abrasions, mends inner tubes—Price $2.00 complete.
MODEL "T" makes ordinary tube repairs—Price complete $1.50.
MODEL "S" for garage use, makes tube repairs up to 12 inches—Price complete $12.00.

Sold by Jobbers and Dealers Everywhere.

ADAMSON MFG. CO., - - - East Palestine, O.

Now and After the War $ BATTERY CHARGING Will Pay You BIG PROFITS

Curtailment of motor car production—more old cars in use—more batteries to charge—and battery charging means bigger business and bigger profits—that's the opportunity you have right now. After the war the demand will be vastly increased and your opportunities will be greater than ever.

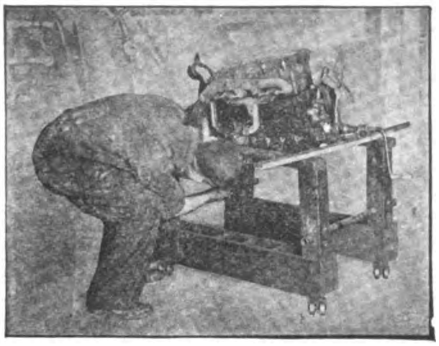
HB 500 WATT BATTERY CHARGER

Go after this profitable business right now and build for after the war with HB equipment. Anyone can operate—No extra help necessary. This 500 Watt Charger will recharge from 1 to 7 batteries at once, with a current cost of only 12c to 15c per battery. Autoist pays 75c to $1.50. Hundreds of HB owners are clearing $100 to $150—Some even more. Why not you?

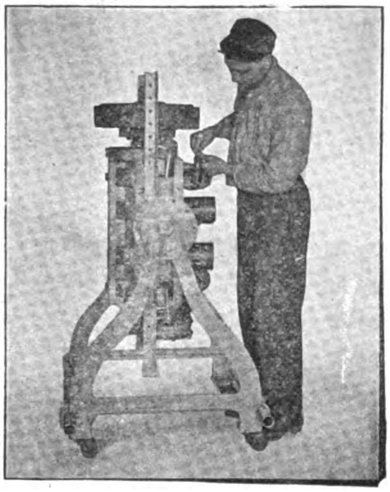
$15 Puts This Money-Maker in Your Garage

Balance in 9 monthly payments of $20 each. Earnings should easily pay and make good profit besides. Write for full particulars or send $15 with trial order and get your charger at once. Under absolute money-back guarantee, you run no risk. Write or wire today.

HOBART BROTHERS COMPANY
Box C 10 TROY, OHIO



THE OLD WAY
Expensive and Inefficient



THE CONTINENTAL WAY
Saves Time, Money and Labor

Continental Auto Parts Co.
Knightstown, Indiana, U.S.A.

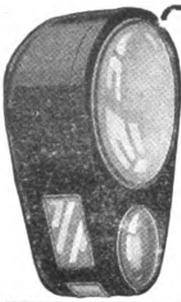
Would You Read Your Paper Upside-down?

Why ask your mechanics to stand on their heads to repair a motor?

—DON'T—

Install Continental Motor Stands Today

Catalogue on request



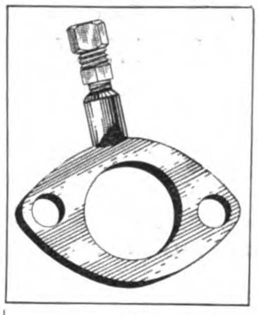
King Safety Tail Light takes the fear out of night driving—

Equip your car with one NOW

For particulars write

KING-BULL MFG. CO.

123 E. Ontario St.
Chicago.



The Puritan Inlet Gasket

A practical, non-leakable connection for auxiliary air valves, moist air devices, primers, decarbonizers and other like equipment.

Sets between carburetor and manifold. Guaranteed a perfect fit and will not break. Drilled and tapped for one-eighth inch pipe thread.

List Prices—80 cents to $1.10 from 1 inch to 1 7-8 inches. Other sizes in proportion. When ordering, state make, size and shape of carburetor.

The Puritan Oxgin Iza

Takes steam from radiator cap. Adds greatly to the power SAVES GASOLENE and ELIMINATES CARBON. It is controlled from seat. Guaranteed to afford full satisfaction. No drilling or extra tanks.

LIST PRICE $12.00

Order today or send for particulars. These are money-saving devices that add to car efficiency.

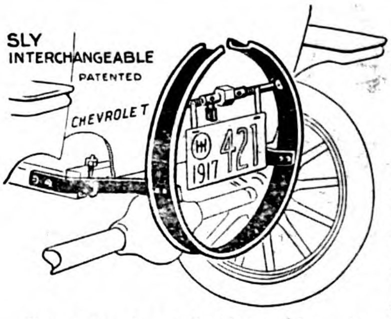
Jobbers and Dealers: These are fast sellers. Send for discounts.

THE PURITAN MACHINE WORKS,
7 Hersam Street Stoneham, Mass.

NEW DEPARTURE BALL BEARINGS

Strength
Stamina
Service

The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee



"SLY" Interchangeable Rear Tire Carriers

For Ford and Chevrolet "490" tires, holds either casing alone or casing on demountable rim, has expansion grip inside of rim, avoids all contact or chafing, accommodates lamp and number plate. Has provision for locking through holes in adjusting turnbuckle. A big seller every dealer should stock.

If your jobber does not list this tire carrier, write us for complete catalog of tire carriers, "Better" Springs, and "Better" Bumpers.

New Era Spring & Specialty Co.
1177 Hamilton Ave. Grand Rapids, Mich.

CHASE *Leatherwove* "To look like the hide in most respects—In some respects to better"

CHASE MOHAIR VELVETS FOR UPHOLSTERY

CHASE DREDNAUT Motor Topping

CHASE PLUSH AND WOOL MOTOR ROBES

Familiarize yourself with Chase Products.

The choicest of upholstery fabrics for motor cars, Leatherwove or Mohair Velvets.

Wonderful robes for the Motorists.

L. C. CHASE CO.
BOSTON

New York San Francisco Detroit Chicago

WM.B.SCAIFE & SONS CO.
PITTSBURGH, PA.
BRAZED
AIR TANK

SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

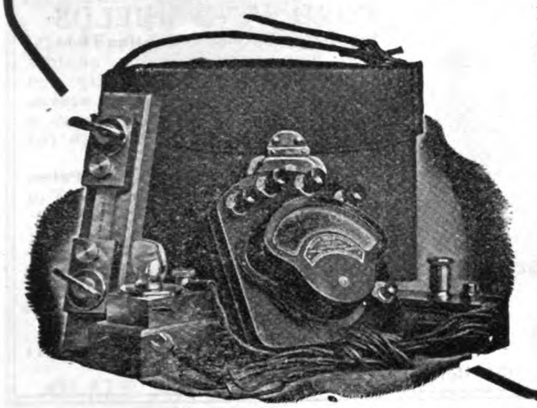
Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

Will Somebody Else Get Your Share?



If you can repair and adjust Electrical Equipment you will get the cream of the garage business and make more money. With the increasing demand for this sort of service you must equip to handle the business or lose it to your more enterprising neighbor.

Model 280

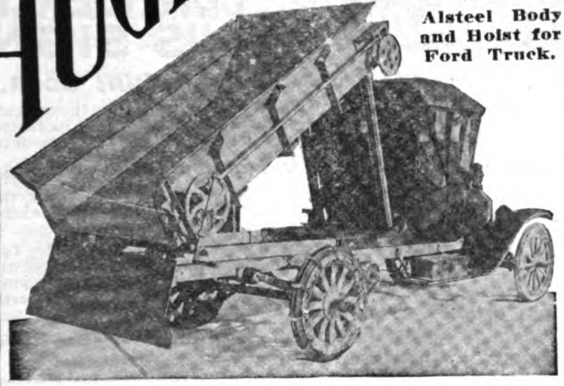
Weston GARAGE TESTING INSTRUMENT

Is the best, the most reliable, and, therefore, the cheapest electrical equipment for you. It enables you to determine promptly and accurately the condition of the electrical equipment of any automobile, just where the trouble is, and just how to remedy it. Write for our **Special Proposition.**

WESTON ELECTRICAL INSTRUMENT CO., 103 Weston Ave., Newark, N. J.

23 Branch Offices in the Larger Cities

AUGLAIZE HOIST



Alsteel Body and Hoist for Ford Truck.

Boosts the Load With the Least Effort

QUADRUPLE WORM GEAR

Built in sizes up to 5 tons. Weighs less than any other hoist and covered with a liberal guarantee. **Prices up to 1½ tons, $83.00; from 1½ to 5 tons, $109.00.**

AUGLAIZE ALSTEEL BODIES

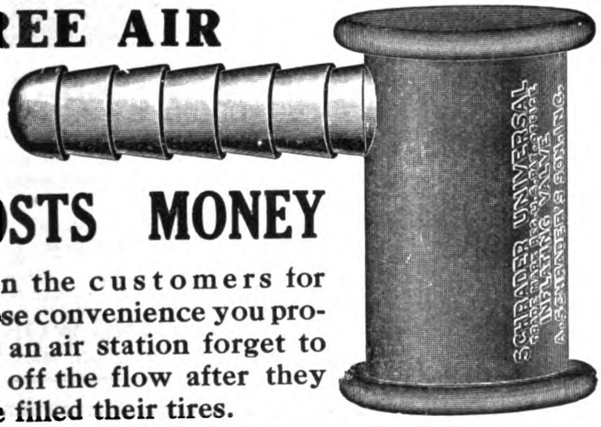
Staunchly constructed of all steel and guaranteed against defective material and workmanship. Will carry 50% overload. Prices range from $150.00 to $225.00, according to size.

Auglaize Special Alsteel Body and Hoist for Ford Truck

Carrying capacity from 2700 to 3000 lbs. of gravel, sand, crushed stone or coal; approximate weight, 550 lbs. **Retail price, $206.25. Equipped with the Auglaize Powerful, Speedy, Light-Weight Hoist. Dealers allowed a liberal commission and selling co-operation. Write at once for catalog and sales plans.**

THE AUGLAIZE MOTOR CAR CO, New Bremen, Ohio

FREE AIR



COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Automatic Inflating Valve

to your air hose. Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve. Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.50 in U. S. A.

Manufactured by **A. SCHRADER'S SON, Inc.**
800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

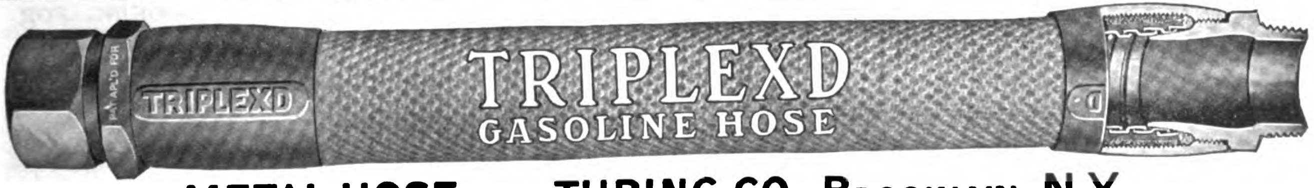
W. S. S.

We Suggest Stamps
War Savings Stamps
Without Shells Soldiers
Would Soon Succumb
War Savings Stamps
Will Supply Soldiers
With Shells

Buy all you can and help to win the war

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to owners of pleasure cars.



METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

Write to Dept. J-10 for illustrated matter and prices.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

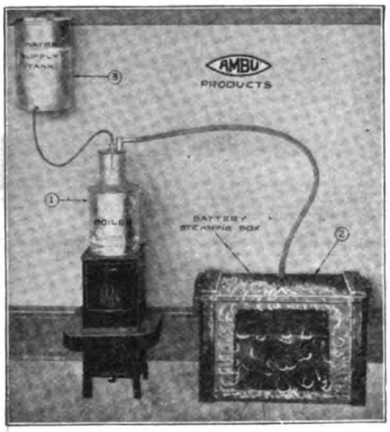
Fewer Men Can Accomplish More With These Helps

The more men the army needs and takes—the more mechanical equipment must you put in your battery shop to get out the work. Therefore, NOW is the time you must help your men with these time and labor saving devices. And they are money makers for the shop, too.

Ambu Battery Steamer

Softens up the "compound" and enables the men to open the battery in the shortest time with no chance of damaging the box. Many a shop has lost the profits on several jobs by having to replace battery boxes broken in opening. Takes but a few minutes to open any battery. Each **$25.00**

AMBU BATTERY PLATE PRESS



Probably one of the most valuable "salvage" devices. By pressing plates properly the life of a battery is doubled and new installations avoided. Made of specially finished wood, acid resisting. Saves its cost in the time lost in cleaning up the metal vise that has been corroded by acid and water. Produces perfect plates in a short time. Each, **$2.50.**

AMBU PLATE BURNING RACK

Burning-in new plates in a battery, without the use of a rack is a long, hard job. The AMBU Plate Burning Rack holds every plate in proper place until finished. Saves its cost on first three jobs. Each............ **$7.50**

LEAD MOLDS

Save all the old lead in your shop. Melt it down into usable form in these handy lead molds. Save their cost in salvaged metal in a few days. Every shop needs a pair and large shops several. Each, **$1.80.** Pair.... **$3.50**

"THE AUTOMOBILE STORAGE BATTERY"

A technical book in nontechnical language that tells the theory and actual practice in the care and repair of storage batteries. Should be in the office of every shop for reference. Postpaid........................... **$5.00**

Every device listed here has been tested and is in use in the leading shops of the country. We guarantee entire satisfaction or your money back without question.

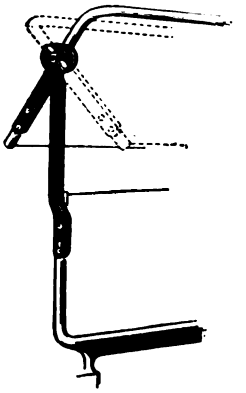
If your jobber cannot supply you write direct.

Ask for our booklet of Battery Shop Helps.

American Bureau of Engineering

1032 Wabash Ave., Chicago.

Makers of AMBU Electrical Trouble Shooter.



Extension Swivel Hinges

FOR REBUILDING

FORD WIND SHIELDS

Into Rainvision and Ventilating Tight

The **Rainvision** feature enables you to see the road perfectly and **drive safely in rain or snow storm.** The **Ventilating** feature keeps a constant **current of air** through the front of your car. **Safety and Comfort at a Low Price.** Let us send you a pair today. You can put them on yourself in 10 minutes with only a screw driver. After using you will never be without them. **Price, $2.00 per pair.**

Immediate Deliveries.

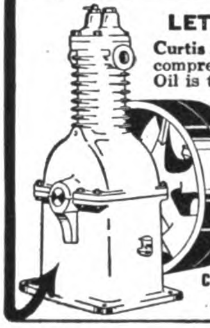
Special Discounts to the Trade.

General Auto Specialty Company, Inc.

151 Berkeley St., Boston, Mass.

CURTIS AIR
FREE FROM OIL

MOTORISTS *Have* CONFIDENCE IN THIS SIGN



LET THEM FIND IT AT *YOUR* DOOR.

Curtis Air means more mileage, because **Curtis** is the only air compressor that can't flood cylinder with more oil than it can use. Oil is the enemy of rubber. It rots tires, causing blow-outs.

A Curtis Compressor Is Dependable

requires practically no attention, costs very little, quickly pays for itself, always delivers the kind of cool, clean air that makes tires last longer.

5 sizes and 125 combinations. Write for full particulars and let us tell you why the **Curtis** will prove to be your best investment. Ask your jobber for prices—but be sure and mention **Curtis**—the name is your protection against substitution

CURTIS PNEUMATIC MACH. CO. 1621A Kienlen Ave. St. Louis, Mo.
Branch Office: 531A Hudson Terminal, New York

Guaranteed Bearings

We Exchange Rebuilt Bearings for old or worn ones

BILODEAU BALL BEARING WORKS

ECONOMY *Plus* EFFICIENCY

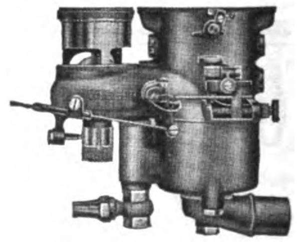
These words mean great strength toward winning the war. They form our policy—and by the standard of that policy we are continually schooling garage men and repair men to avail themselves of our exceptional service of **Rebuilding Worn Bearings.**

Bilodeau Rebuilds All Makes of Worn Bearings, to Run as True as When New.

Write at once for catalog, listing types, sizes and prices of standard designs. Trade discounts confidential.

BILODEAU BALL BEARING WORKS

66 Stanhope Street, BOSTON, MASS.



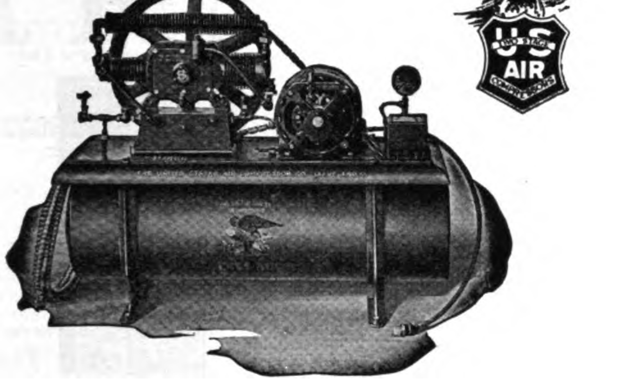
YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

More Mileage—More Power—More Speed

Get him to try it for 15 days. Satisfaction guaranteed.

WEBBER MANUFACTURING COMPANY

Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway



IF ITS AN AIR COMPRESSOR YOU'LL FIND IT IN THE U. S. LINE

THE United States line is complete, containing air compressors for every service up to 500 pounds pressure. Compressors are furnished in both Two Stage and Single Stage types and every unit is absolutely guaranteed.

The U. S. Two Stage De Luxe Automatic Air Unit illustrated above is a remarkable machine, perfectly adapted for a majority of garages, tire shops and service stations. It contains 14 improved features several of which are exclusive.

Be assured of satisfaction. Write today for the U. S. literature.

THE UNITED STATES AIR COMPRESSOR CO.

6538 Carnegie Ave. Cleveland, O.

Big, Steady Profits in Ignition Coil Replacements

A Jefferson Coil For Every Requirement

GET *your full share* of battery ignition coil replacement business. Give every customer *instant service.* You don't need a big, varied, costly and ever-changing stock of coils.

Just a small stock of Jefferson Coils prepares you for every emergency. Jefferson Coils, consisting of only a few types, fit all makes and models of battery-equipped cars. Flexible caps, terminals and brackets make these coils adaptable for every requirement.

Jefferson Coils are of highest quality. Reliable—long-lasting. Even with battery at lowest ebb, they will unfailingly produce hot, intense spark for starting. Fully guaranteed.

Valuable Coil List Free

Write today for full facts and folder with handy, compact coil list that will aid in building up your coil sales. Sent free.

Jefferson Electric Mfg. Co.
429 So. Green St., Chicago

JEFFERSON
Battery Ignition Coils

DIXON'S
No. 677
FIRST AWARD

Pin Your Faith on Dixon's

The lubricants that have proved their superiority in actual use and scientific demonstration. Don't be content with a camouflage coating that squeezes out quickly and leaves bearing surfaces at friction's mercy. Rely on

DIXON'S GRAPHITE Automobile LUBRICANTS

they stay put — save wear, time and money.

Write for Dixon's Dealer's Deal No. 49-G.

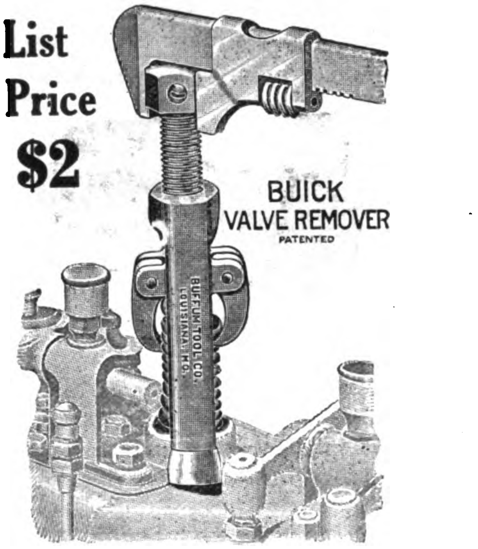
Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

ESTABLISHED 1827

BUICK VALVE REMOVER

List Price $2



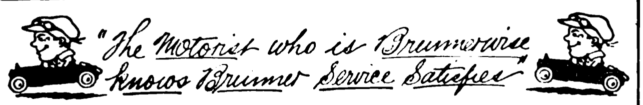
The Buffum Buick Valve Remover is a practical time and labor saving tool for repairers and owners.

It is quick, sure and safe and eliminates all chance of bending washers, valve stems and valve springs, or breaking the valve cage. It lifts the valve up straight with a strong positive pull.

The Buffum will fit any Buick engine with the valves in cages. Light, compact and occupies the same space as space as an ordinary wrench and can be carried in any tool box.

Jobbers and dealers, send for latest catalogue of Buffum car specialties and tools for auto repairers and owners.

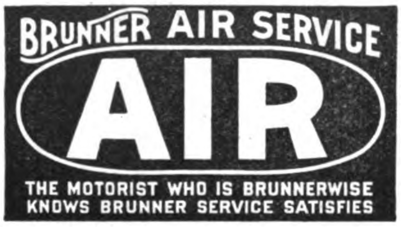
BUFFUM TOOL CO., LOUISIANA MISSOURI


"The Motorist who is Brunnerwise knows Brunner Service Satisfies"

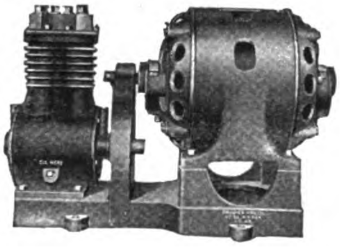
The Confidence of the Motoring Public is the Garagemans Greatest Asset—

BRUNNER

Automatic Garage Air Compressors inspire confidence because they are absolutely reliable, and motorists know they are going to get service when they pull up in front of the garage displaying the Brunner sign—


BRUNNER AIR SERVICE
AIR
THE MOTORIST WHO IS BRUNNERWISE
KNOWS BRUNNER SERVICE SATISFIES

The bright red centre of the well-known Brunner sign is eagerly sought out along the highways from ocean to ocean by thousands of Brunnerwise motorists who know that a high-class, efficient compressed air supply is always available where the Brunner sign is displayed. The Brunner sign was the first air sign—an original Brunner idea.



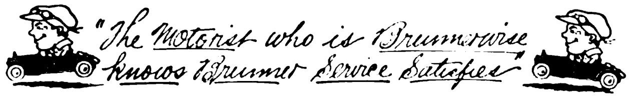
The Brunner is the pioneer of all garage air compressors—a Brunner Automatic would increase the efficiency of your air service and conserve labor for you, Mr. Garageman.

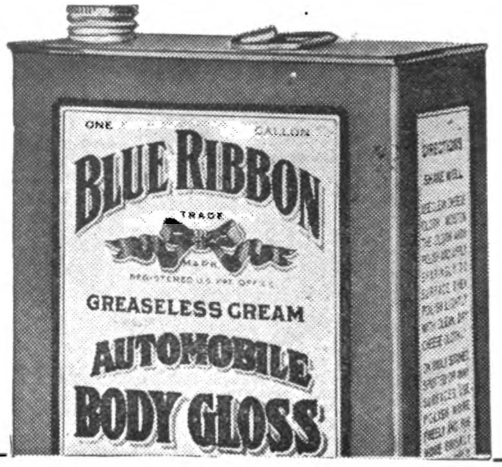
Write for catalogue No. 15 and name of the Brunner jobber covering your town.

Brunner Manufacturing Co.

Main Office & Plant:
UTICA, N. Y.

Western Branch:
Cincinnati, Ohio


"The Motorist who is Brunnerwise knows Brunner Service Satisfies"

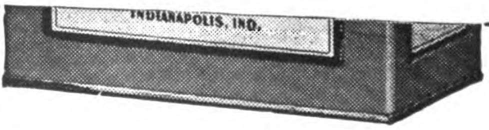

ONE GALLON
BLUE RIBBON
TRADE MARK
REGISTERED U.S. PAT. OFFICE
GREASELESS CREAM
AUTOMOBILE
BODY GLOSS

KEEPS THE BODY OF YOUR CAR *Shining* LIKE A MIRROR

No Grease to Catch Dust
Does Not Coat the Finish
Best Furniture Polish Made
Use With Spray if Desired

International Metal Polish Co.

INDIANAPOLIS, INDIANA


INDIANAPOLIS, IND.

TRADE OUTLET

GENUINE CHAMPION X SPARK PLUGS

FOR FORDS 38c.

Only Six to a Customer.

We bought a lot of these plugs all brand new from a bankrupt stock. We bought them right and will give our customers the advantage. The regular price is 75c. Special price while they last 38c.

Penn. Oil Special	**50c gallon**

BODIES.

Five-passenger Maxwell Touring Body, will fit Fords	**$35.00**
1915 Studebaker Body, five-passenger	**$45.00**
Abbott Cloverleaf Bodies, complete with tops and windshields	**$175.00**

SPRINGS.

For all makes of cars	**$3.00 up**

WHEELS AND RIMS.

For all makes of cars	**$3.00 up**
Houck Wire Wheels, 34x4½ and 36x4½, set of five wheels	**$75.00**

SPECIALS.

Gasoline Tanks, all shapes and sizes	**$1.00 up**
Fenders for all cars	**3.00 up**
$29 Exide 6-volt starting and lighting battery	**20.00**
6-volt Ward-Leonard Starting Motors	**15.00**
6-volt Autolite Generators	**12.50**
Spot Lamps	**1.00 up**
Steering Gears	**2.50 up**

PURITAN MACHINE COMPANY
30 Puritan Building
10th and Lafayette Blvd.,
Detroit, Mich.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. **40 Mathewson St., Providence, R. I.**
Phone Union 4179-R.

Auto Parts

SAVE AT LEAST 50%

We have in stock at all times parts for Stearns, Stevens-Duryea, Flanders, Maxwells, E. M. F., Buicks, Mitchells, Speedwells, Herreshoffs, Hudsons, Elmores, Pope Hartfords and Franklin cars. **Write, Wire or Phone.**

BOSTON AUTO PARTS CO.,
1240 Dorchester Avenue, Boston, Mass.

Superior Parts and Brushes

FOR ALL

Ignition and Starting Lighting Systems

Used for Years by the Best Repair Shops Everywhere

"They Last Longer but Cost Less"

Write for Catalogue

Specialty Manufacturing Co.
637 Massachusetts Ave., Arlington, Mass.

Send it to Detroit

MAGNETOS.

Bosch DU-4 Variable spark	$30.00
Bosch DU-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cyl. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	10.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hours service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange
192 Grand River Ave. Detroit, Mich.

AUTO SAVE 50-90% FOR 400 CARS PARTS

POPE, PACKARDS, PIERCE, BUICK, STEVENS-DURYEA, KNOX, OVERLAND, ETC.

Motors	$25.00 up	Presto Tanks	$ 4.50 up
Magnetos	4.00 "	New Spotlights	2.00 "
Carburetors	3.00 "	Generators	10.00 "
Rear Axles	15.00 "	Gears	1.00 "
Front Axles	5.00 "	Bearings	1.00 "
Cylinders	5.00 "	Radiators	10.00 "

$12 Diamond Bumpers	**$5.50**

Jobbers in Bankrupt Auto Supplies.

BRIGHTMAN AUTO EXCHANGE
84 Wooster St., Hartford, Conn.

MANUFACTURERS AND GARAGES.

With our facilities we are especially equipped to handle large and small **Welding Jobs.**

Work done when you want it. Correspondence invited.

WILKINS & HOVEY CO.,
35 Albany St., Cambridge, Mass.

TRADE MARK TREADO PATENTED MAY 9, 1916 REG. U.S. PAT. OFF.

SMALL CUTS

in your Auto Tires, mend them yourself with TREADO—a prepared rubber, requires no cement, heat or patches. 50c a can. **Special Discounts to Dealers.**

TREADO MANUFACTURING CO.
42 Dwight St., Springfield, Mass.

SAVE MONEY

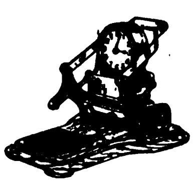
ON

Your Tires

Our first quality seconds are giving big mileage to our customers everywhere. You, too, can save money. Write us for our price list.

50% SAVED.

General Auto Tire Co.
187 Columbus Ave., Boston, Mass.



Hoggson Universal Time Registers, Recorders and Stamps record everything coming to or leaving the place. Cars, employees, job work, cost of manufacture, sales made, etc. Especially designed for garages, machine, printing and all shops having limited number of employees. **S. H. Hoggson & Co., 27 Thames St., New York City.**

NEW HONEYCOMB RADIATORS

All models for Ford cars	**$22**

And your old radiator in fair shape.

USED RADIATORS, $11 to $15.

First class repairing on radiators lamps and windshields. **New honeycomb sections** installed in smashed and frozen radiators.

STANHOPE AUTO ACCESSORY CO.
25 Stanhope St., Boston, Mass.

"NORMA"

PRECISION BALL BEARINGS

(PATENTED)

Today—whether in men or in machines—the measure of value is the capacity for service. Not so much "what is the price" but "what will it do", is the decisive question. To be saleable today, a thing must above all be serviceable. And serviceability commands a ready market and a good price.

"NORMA" Precision Bearings are the standard bearings in high-grade ignition apparatus and lighting generators because the test of time has proved their pre-eminent service capacity. Their maximum-service qualities contribute mightily to the service qualities of those better cars, trucks and tractors that carry "NORMA" equipped accessories.

Be *Sure*—See That Your Electrical Apparatus Is "NORMA" Equipped.

THE NORMA COMPANY OF AMERICA

1790 BROADWAY NEW YORK

Ball, Roller, Thrust, Combination Bearings

THE ACCESSORY AND GARAGE JOURNAL

INDEX TO ADVERTISERS

	Page
Adamson Mfg. Co	55
Advance Auto Accessories Corp	12
American Bureau of Engineering, Inc	58
American Technical Society	5
Anderson Co	7
Auglaize Motor Car Co	57
Automobile Devices Co	52
Bearings Service Co	8
Bilodeau Ball Bearings Works	58
Boston Auto Parts Co	61
Bowser & Co., Inc., S. F	63
Brightman Auto Exchange	61
Brunner Mfg. Co	60
Buffum Tool Co	59
Bunting Brass & Bronze Co	52
Chase Co., L. C	53
Colorado Tire and Leather Co	3
Columbus Varnish Co	6
Continental Auto Parts Co	56
Corning Glass Works	9
Corps Brothers	61
Curtis Pneumatic Machinery Co	58
Detroit Magneto Exchange	61
Dixon Crucible Co., Jos	59
Dyer Co., G. H	1
Faw, Inc., J. H	55
Fisk Rubber Co	51
Fitzgerald Mfg. Co	10
Franklin Mfg. Co	64
Gates Rubber Co	3
General Auto Specialty Co	58
Greenfield Tap and Die Corp	53
Higgins Spring and Axle Co	Cover
Hobart Brothers Co	55
Hubbard, M. K., Spring Co	64
International Metal Polish Co	60

INDEX TO ADVERTISERS

(Continued)

Page

Jefferson Electric Mfg. Co....59
Jenkins Vulcan Spring Co....64

Kennedy Car Liner and Bag Co....58
King-Bull Mfg. Co....56

Lawson, F. H., Co....64

Martin Mfg. Co....52
Metal Hose and Tubing Co....57
Mueller & Co., R. S....55

National Bearings Service Co....54
New Departure Mfg. Co....56
New Era Spring and Specialty Co....56
Norma Co. of America....62

Piston Ring Co.... 2
Puritan Machine Co....61
Puritan Machine Works....56

Robinson Mfg. Co....52
Ross-Gould List and Letter Co....52

Scaife, Wm. B. & Sons Co....56
Schrader's Son, Inc., A....57
Shaler Co., C. A....64
Specialty Mfg. Co....61
Stenman Electric Valve Grinder Co., Inc....64

Treado Manufacturing Co....61

United Engine and Mfg. Co....64
United States Air Compressor Co....59
United Motors Service, Inc.... 4

Vanderpool Co....53

Y. M. C. A....11

Walden-Worcester, Inc....Cover
Webber Mfg. Co....58
Weston Electrical Instrument Co....57
Wilkins & Hovey Co....61
Williams Foundry and Machine Co....52

BOWSER
ESTABLISHED 1885

OIL TANKS, PUMPS AND STORAGE SYSTEMS

Conservation That Will Win the War

The Oil Division of the United States Fuel Administration warns that unless manufacturers and all operating plants requiring the use of lubricants, do their utmost to SAVE, the next step will be to apportion to each industry what experts consider the necessary amount of oil and allow them to purchase *only* that much.

With such drastic conservation measures pending it is a most opportune time to give the matter of efficient oil handling equipment the most serious consideration.

OIL must not only be conserved by "Stopping the Leaks and Saving the Drops" but also "By making every DROP Work".

"To SAVE the DROPS" the most efficient OIL STORAGE and HANDLING SYSTEMS are absolutely indispensable.

To be in a position to WORK the DROPS properly oil must be protected against contamination with dirt, grit and various other impurities.

BOWSER SYSTEMS ARE:

Leakproof
Fireproof
Lossproof
Deterioration proof
Evaporation proof
Rapid
Convenient
Highly Efficient

Tell us your problem, We'll help you CONSERVE OIL.

A System for every Requirement.

S. F. Bowser & Company, Inc.
FORT WAYNE, Indiana, U. S. A.

Sales Offices in all Centers
Representatives Everywhere

REG. U.S. PATENT OFFICE
IRONCLAD
KHAKI TWILLS
GUARANTEED FAST
WEARS LIKE LEATHER

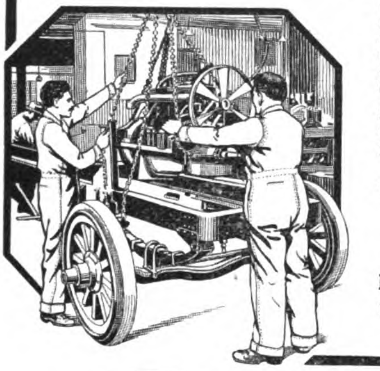
UNCLE SAM'S FIGHTING BOYS WEAR

IRONCLAD KHAKI

(Twill Cloth)

You men and women on the "firing lines" of industry should wear garments of this patriotic economy cloth, too. It's fast color and *wears like leather.*

Coveralls, Overalls, Shirts and Pants



made of the genuine IRONCLAD KHAKI (the kind Uncle Sam uses) carry the yellow "Army label" like the above. LOOK for it and the Guarantee Bond in the garments before you buy.

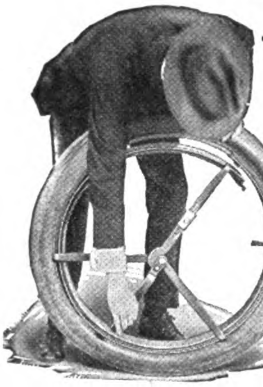
See for yourself what Ironclad Khaki and Miss Ironclad Khaki, the special woman's overall cloth, look like. Write today for free samples.

Garments on Sale by Dealers —Everywhere.

We are makers of the cloth only

FRANKLIN MANUFACTURING CO.

134 Market Place Baltimore, Md.



REMOVE *ANY* RIM

with the

"Lawco" Rim Tool

(Patents Pending)

Do in a minute what now takes an hour without injury to rim, tire, or valve stem. Use the "Lawco" Rim Tool. Closes compactly. Weighs 5½ pounds. Only $3.50.

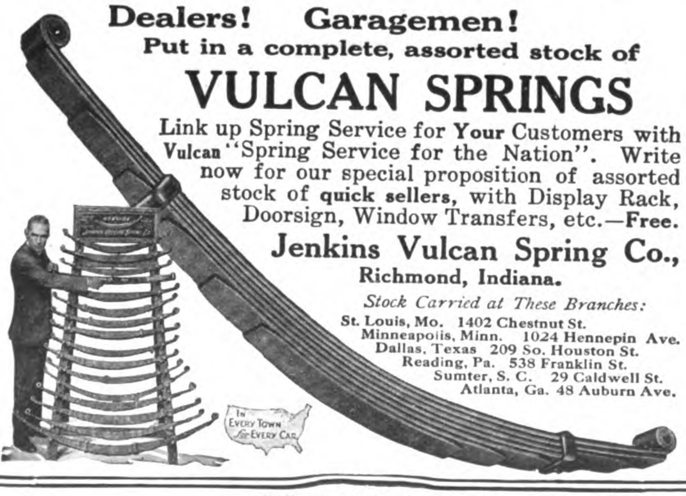
Dealers write for proposition

Dept. G. THE F. H. LAWSON CO., Cincinnati, Ohio

Dealers! Garagemen!

Put in a complete, assorted stock of

VULCAN SPRINGS


In Every Town For Every Car

Link up Spring Service for Your Customers with Vulcan "Spring Service for the Nation". Write now for our special proposition of assorted stock of **quick sellers**, with Display Rack, Doorsign, Window Transfers, etc.—Free.

Jenkins Vulcan Spring Co.,
Richmond, Indiana.

Stock Carried at These Branches:

St. Louis, Mo. 1402 Chestnut St.
Minneapolis, Minn. 1024 Hennepin Ave.
Dallas, Texas 209 So. Houston St.
Reading, Pa. 538 Franklin St.
Sumter, S. C. 29 Caldwell St.
Atlanta, Ga. 48 Auburn Ave.

PROFIT ON YOUR LABOR

STENMAN VALVE ELECTRIC GRINDER

Repairers need it; Efficiency prompts its use; Scarcity of workers demand it.

In twenty minutes eight valves can be ground easily and accurately. A perfect job guaranteed. A novice can operate it. The old way by hand takes two hours or more with uncertain results. Saves the time and adds it all to profits.

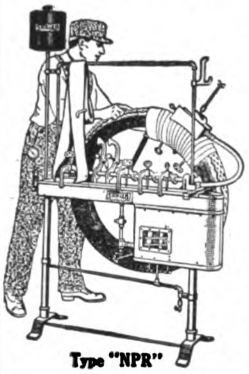
Plugs in on any lamp socket. A or D current, 110 or 130 volts. Made for higher voltage when required.

State voltage desired when ordering.

Sold by dealers or direct.

The Stenman Electric Valve Grinder Co.
42 Southbridge Street, Worcester, Mass.

Make Money Repairing Tires



Type "NPR"

The high cost and limited supply of tires offers repair men a big opportunity to make money. Experienced help not necessary. A boy can do it easily.

SHALER

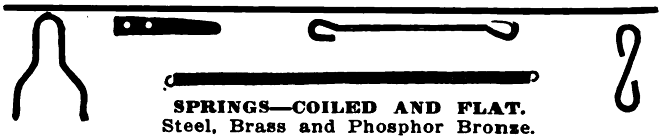
SHOP VULCANIZER

Has Automatic Heat Control

Requires no watching or regulating. It works automatically. Easy to operate—can't overcure or undercure. Large capacity—repairs 12 casings and 200 tubes a day. Type N. P. R., price $70 subject to trade discounts.

Write for Catalog of the famous Shaler Vulcanizers—steam—gasoline—dry fuel and electric for Tire Repair Shops, Garages and Motorists' use.

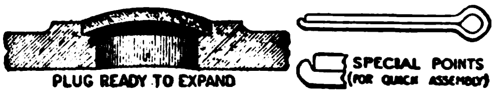
C. A. SHALER CO., 257 Fourth St., Waupun, Wis.



SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

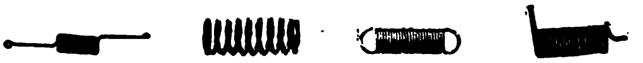
16 lbs. Assorted Springs	**$2.00**
25 lbs. Assorted Cotters	**5.00**

Subject to Market Changes.
Send for Catalogue.


PLUG READY TO EXPAND
SPECIAL POINTS (FOR QUICK ASSEMBLY)

Welch Patent Expansion Plug.
For Closing Core Holes.

M. K. HUBBARD SPRING CO., Pontiac, Mich.



The MANLEY GARAGE AND SHOP EQUIPMENT

Every garageman and repairman should get our catalog. You'll find in it just the time and labor savers you need, and their prices will astonish you by their moderateness.

Send for your copy of this catalog today

THE UNITED ENGINE & MFG. CO.
Hanover, Pa.

DEMAND DYER!

THE BEST ALWAYS

Standard
.0025 oversize
.005 oversize
.010 oversize
.015 oversize
.025 oversize
.031 oversize

FORD TYPE PISTONS

Car Owners and Dealers Want Dyer Pistons Because:

1. **All Measurements are Guaranteed Correct.**
2. **They are Accurately Fitted With the Best Step-Cut Rings.**
3. **They are of Uniform Weight—3¼ Pounds.**
4. **Pistons and Rings are Ground to Exact Size and Have a High Finish.**
5. **The Pins and Bushings are Made From the Best Stock Carefully Ground, Reamed and Fitted.**

Jobbers throughout this country and Canada handle Dyer pistons.
DEMAND Dyer for the Best.

WHEN YOUR MOTOR

Loses Power, Carbonizes, Knocks, Develops Piston Slap or Scored Cylinders

LET US

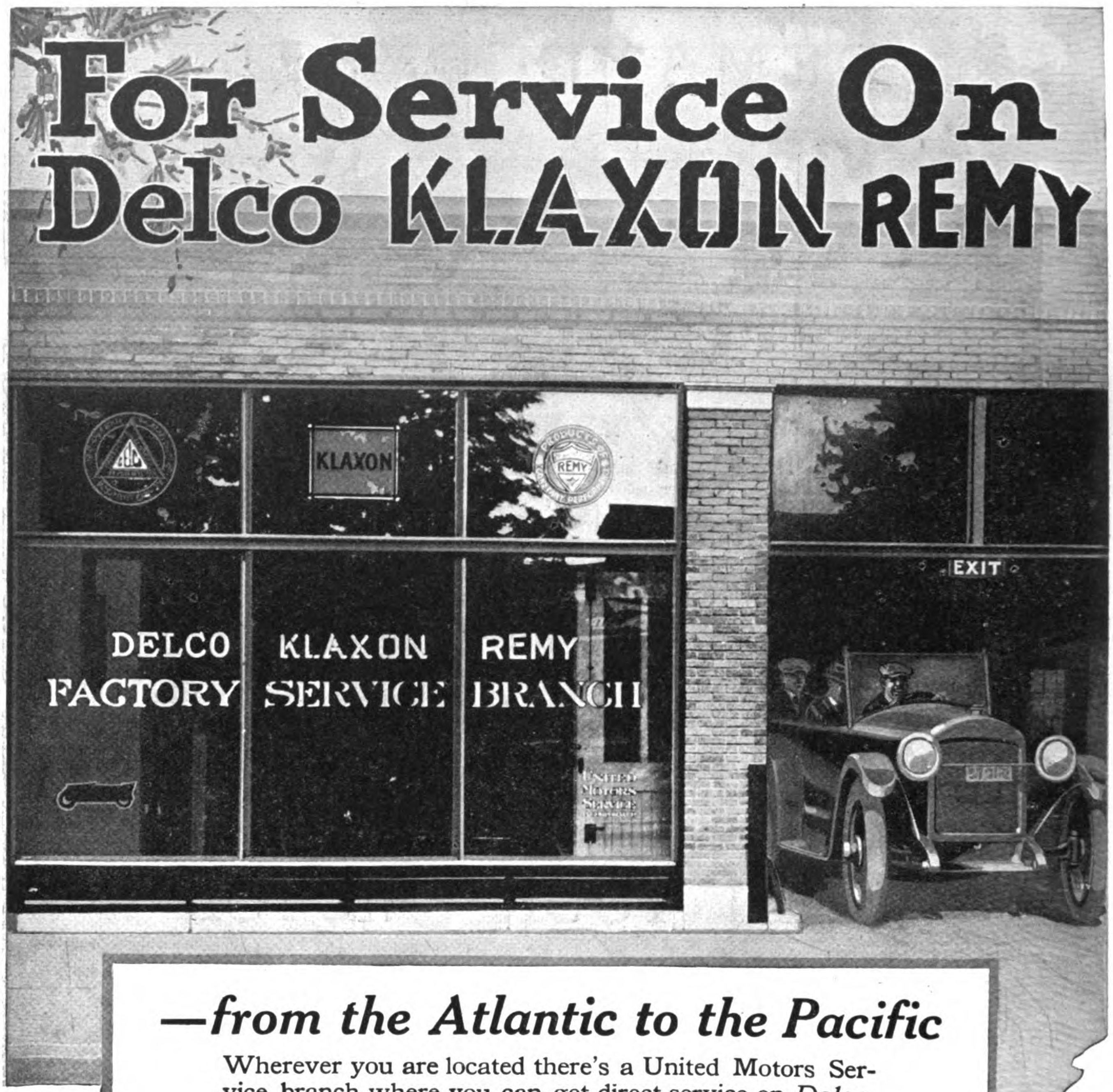
RE-GRIND THE CYLINDERS and FIT NEW PISTONS

Best Equipment Expert Operators Guaranteed Work

Pleasure Car Truck Tractor Marine

If your Dealer advises cylinder re-grinding, new pistons or both, request your motor be sent to us. We do this work for many of the big service stations and garages in this territory.

THE G. H. DYER CO., Cambridge, Mass.



For Service On Delco KLAXON REMY

—*from the Atlantic to the Pacific*

Wherever you are located there's a United Motors Service branch where you can get direct service on *Delco, Klaxon and Remy electrical equipments.* Efficient service plus genuine parts for repairs or replacements. Service rendered by trained workmen and with the aid of official factory records.

United Motors Service, Inc. branches in the following cities giving service on Delco, Klaxon and Remy:

Kansas City
Chicago
Detroit
Los Angeles
San Francisco
New York

15 cities in which there are Remy Service Stations

66 cities in which there are Klaxon Service Stations

General Offices:
Detroit, Mich.

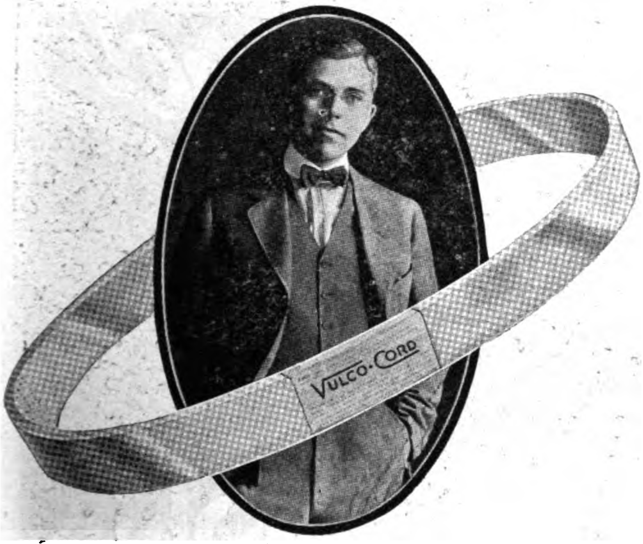
United Motors Service Inc. branches in the following cities at present rendering service on Remy only:

Denver
Minneapolis
Cleveland
Boston
Atlanta

MOTORS SERVICE
TRADE MARK

UNITED MOTORS SERVICE
INCORPORATED

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)



CHARLES C. GATES

Have You Doubled Your Fan-Belt Business This Year?

UNLESS you have doubled your fan-belt business this year you are not getting your share of fan-belt profits.

You are turning business away because you cannot fit your customers' cars—and losing profits that belong to you.

Standardization—the scientific principle applied to fan-belts by Charles C. Gates, inventor of the Vulco Process—has solved this problem for you.

A Gates Vulco-Cord Belt isn't made to fit just one car. It will fit as many as 12 different makes and models; and is labeled with the names of the cars it fits. From a stock of eight or nine standardized Vulco-Cord Belts you can fit every car in your territory.

You have never been able to do this before.

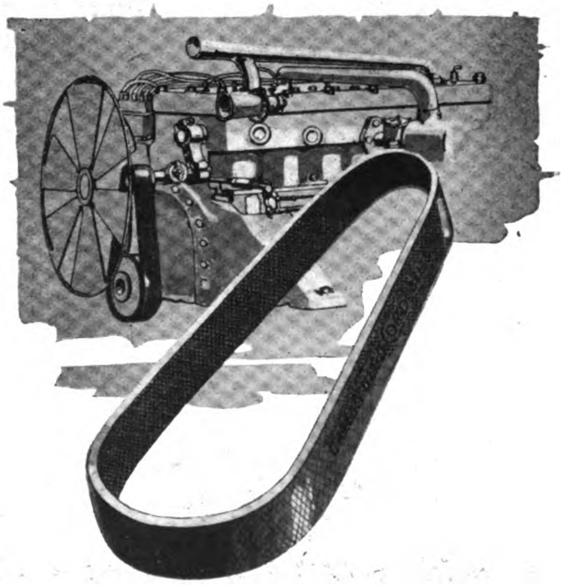
You have been doing a 50% fan-belt business, but now, with no more stock, you can just as easily take the profit from a full 100% sale—The Standardized Gates Vulco-Cord Belt has made it possible.

Over 24,000 dealers are now selling Vulco-Cords. Don't let your competitor get more than his share of this business—it's profitable. The Standardized Gates Vulco-Cord Belt will double your fan-belt business in 1919.

The Gates Rubber Co., Sundries Department

Formerly the Colorado Tire and Leather Co.

"World's Largest Makers of Fan-Belts"



Patented in United States and Foreign Countries

DENVER
1918

A Stock Record

We Can Ship
From Stock

Cylinder Head Gaskets
for
87
Different
Car Models

Can We Serve You

The FITZGERALD MFG. CO.
TORRINGTON, CONN.

Many a Driver Will
Make the Old
Car Do

CARBORUNDUM
VALVE GRINDING COMPOUND
MANUFACTURED BY
THE CARBORUNDUM CO. NIAGARA FALLS, N.Y. U.S.A.
CARBORUNDUM
VALVE
GRINDING
COMPOUND

That will mean more repairs—more valves to be ground, therefore all the more reason why you should use

Carborundum Valve Grinding Compound

You will save time and make the job a whole lot easier with Carborundum Compound because it cuts so clean and so quickly, giving a true, smooth valve seat—without scoring. The compound is a mixture of the marvelously hard, sharp, fast-cutting, Carborundum grains and a high-grade grease—it is

The Compound that Cuts

Put up in handy two-compartment combination cans or in one- and five-pound tins.

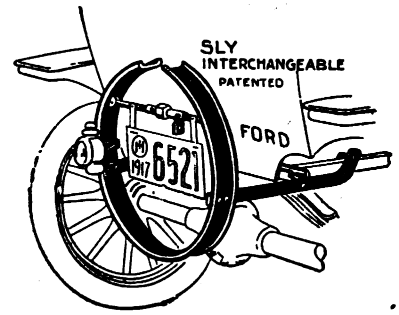
Write for circular on Carborundum Products for the garage

The Carborundum Company, Niagara Falls, N. Y.

New Era "Better" Motor Requisites

Made Right - Priced Right - Sold Right

Most jobbers throughout the country support this line of motor requisites. Year after year their business has increased through the demand for them. In turn, accessory and garage men have found New Era products a source of great profit, because of our policy of discouraging cut price catalog houses, constant advertising, circularizing and trade cooperation. Accessory and garage men enjoy being able to offer goods that they know they can stand by, at reasonable prices, and which give them a fair margin of profit. There is all-around satisfaction in such a line—to the jobber, the dealer and the manufacturer. Our policy merits the jobber's support. Our line warrants dealers in recommending it. We issue a complete catalog of interesting motor requisites for all cars. We suggest that accessory and garage men send for this catalog, and we will be glad to give full particulars.



Be Up-to-date on Tire Carriers

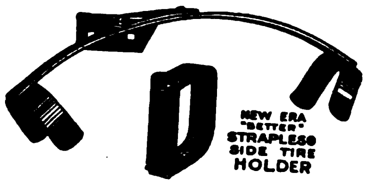
The "Sly" Interchangeable Rear Tire Carriers for Ford and Chevrolet "490" tires holds either casing alone, or casing on demountable rim inside of rim, Firestone and plain. Has expansion grip inside of rim. Avoids all contact or chafing. Accommodates lamp and number plate. Has provision for locking through holes in adjusting turnbuckle. Dealers carrying the 1918 improved "Sly" Interchangeable Rear Tire Carriers are enthusiastic over their sales.

Price, $5.00 Single—$6.50 Double.

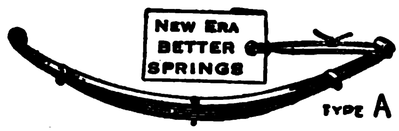
New Era "Better" Strapless Side Tire Holder

Made of steel. No cast parts to break. The locking device is a part of the tire holder. No need of extra chain to lock around. Instantly slips into place. No straps to buckle, wear out or lose. Self-expanding carrying rim can be furnished where demountable rims are not used. The popularity of this tire holder is increasing.

Price, $2.00 Single—$3.00 Double.



New Era "Better" Springs



New Era "Better" Springs STOP the breakage. They are famous the world over. The dealer who values the patronage of his customers wants to sell springs that are well known and stand up. New Era "Better" Springs not only stand up, but are regarded by those who have tried them as the "solution of the motor car spring problem." They are guaranteed against sagging or breaking for one year, and to match in load depressions the other springs on the car. No strings on these guarantees. The dealer in New Era "Better Springs" gets the business. Our lists are lower than most others.

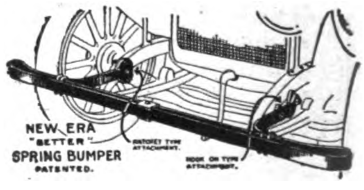
Price according to car on which used.

New Era "Better" Spring Bumpers

LIGHTER - NEATER - STRONGER

The Interchangeable New Era "Better" Spring Bumper solves stocking troubles. Their construction is scientific. Their interchangeability is a big advantage. The spring makes this a "Better" bumper. More and more of these bumpers will be used. Owners of cars realize the need of bumpers and perceive the advantages of the Interchangeable New Era "Better" SPRING Bumper.

Price, $10 in black—$11.50 nickel front.

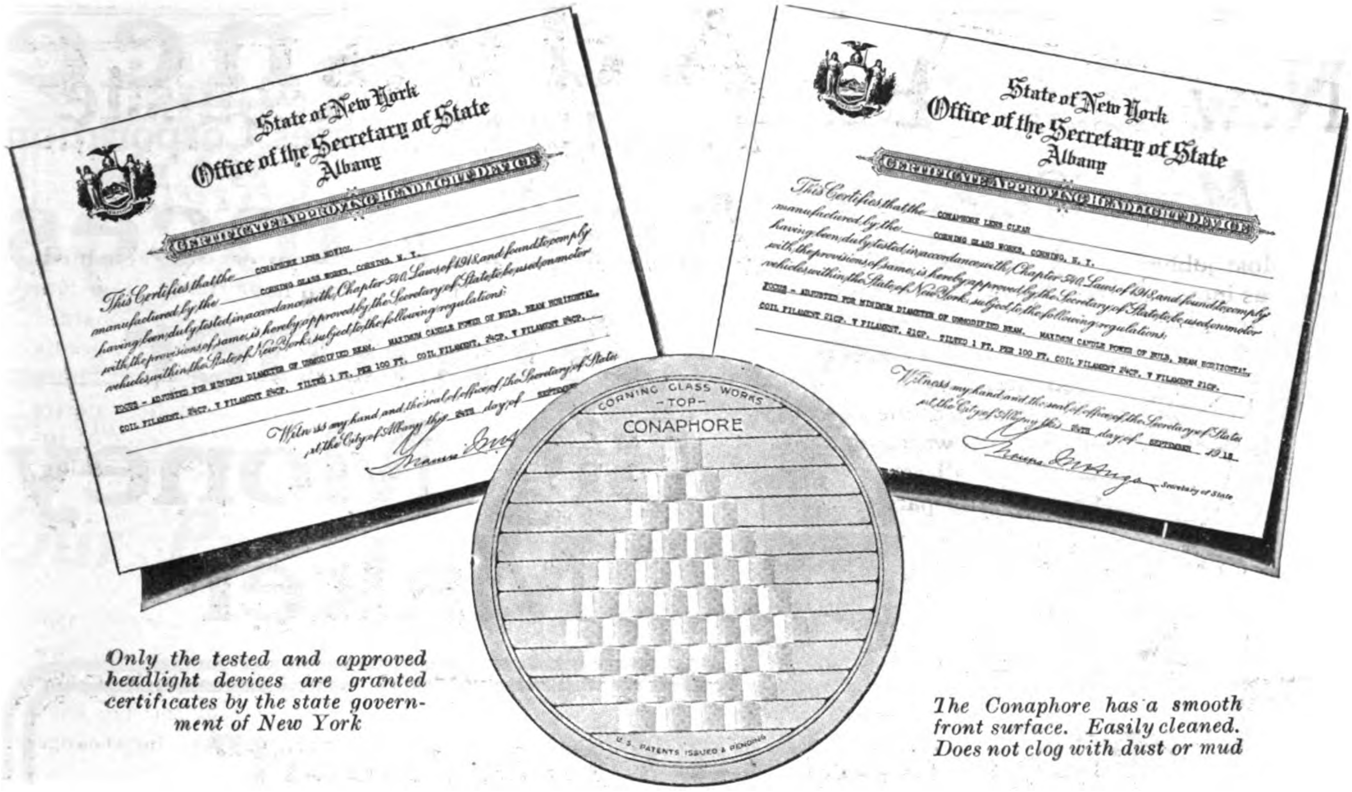


GOOD WINTER PROFITS WITH THIS LINE

With automobiles being driven all winter these days there is a good demand for our line of motor requisites. Suggest to car owners the use of these requisites. Tell of their advantage. Suggestions bring the profits. You can do a good business with this line all winter if you try. The profit is worth while.

New Era Spring and Specialty Company

1177 HAMILTON AVENUE, GRAND RAPIDS, MICH.



State of New York
Office of the Secretary of State
Albany
CERTIFICATE APPROVING HEADLIGHT DEVICE

This Certifies that the CONAPHORE LENS NOVIOL manufactured by the CORNING GLASS WORKS, CORNING, N. Y. having been duly tested in accordance with Chapter 540 Laws of 1918, and found to comply with the provisions of same, is hereby approved by the Secretary of State to be used on motor vehicles within the State of New York, subject to the following regulations:

FOCUS - ADJUSTED FOR MINIMUM DIAMETER OF UNMODIFIED BEAM. MAXIMUM CANDLE POWER OF BULB, BEAM HORIZONTAL, COIL FILAMENT, 24CP, V FILAMENT 24CP. TILTED 1 FT. PER 100 FT. COIL FILAMENT, 24CP, V FILAMENT 24CP.

Witness my hand and the seal of office of the Secretary of State at the City of Albany this 28TH day of SEPTEM

State of New York
Office of the Secretary of State
Albany
CERTIFICATE APPROVING HEADLIGHT DEVICE

This Certifies that the CONAPHORE LENS CLEAR manufactured by the CORNING GLASS WORKS, CORNING, N. Y. having been duly tested in accordance with Chapter 540 Laws of 1918, and found to comply with the provisions of same, is hereby approved by the Secretary of State to be used on motor vehicles within the State of New York, subject to the following regulations:

FOCUS - ADJUSTED FOR MINIMUM DIAMETER OF UNMODIFIED BEAM. MAXIMUM CANDLE POWER OF BULB, BEAM HORIZONTAL, COIL FILAMENT 21CP. V FILAMENT, 21CP. TILTED 1 FT. PER 100 FT. COIL FILAMENT 24CP. V FILAMENT 21CP.

Witness my hand and the seal of office of the Secretary of State at the City of Albany this 28TH day of SEPTEMBER 1918

Secretary of State

Only the tested and approved headlight devices are granted certificates by the state government of New York

The Conaphore has a smooth front surface. Easily cleaned. Does not clog with dust or mud

Conaphores again approved—maximum candle power allowed

THESE certificates—issued in accordance with the Laws of 1918, State of New York—carry a message of vital importance to every dealer in automobile accessories in the United States. This message is two-fold.

1. Conaphore efficiency officially recognized

Conaphores—both Noviol and clear—are officially approved by the Secretary of State, State of New York, as the result of tests made according to the provisions of the new motor vehicle laws. More important still, ***Conaphores may be used with maximum candle power bulbs***—24 c. p. for Noviol Conaphores with beam horizontal or tilted 1 ft. per 100 ft.; 24 c. p. for clear Conaphores when beam is tilted 1 ft. per 100 ft., or 21 c. p. when beam is horizontal. No other headlight device is allowed a higher candle power.

This proves to the dealer that there is at least one headlight glass he can handle which does not sacrifice range to eliminate glare. Using bulbs of the candle power approved, Conaphores give 500 ft. range, with all glare killed.

2. Headlight laws mean business

These certificates mean also that in New York State the headlight laws are more than a "scrap of paper." They will be rigidly enforced. More than that, other states will fall in line and tighten up on headlight law enforcement.

The Conaphore dealer who gets behind the movement to enforce the headlight laws is speeding the day of their universal enforcement. He is doing his customers and community a real service. And, at the same time, he is stimulating an increased demand for the Conaphore—the efficient, safe and legal headlight glass.

Retail Price List (per pair)	**Noviol Glass**	**Clear Glass**
5 to 6⅞ inches, incl.	$2.40	$1.60
7 to 8½ inches, incl.	3.50	2.50
8⅝ to 10 inches, incl.	4.50	?.00
10⅛ to 11½ inches, incl.	6.00	4.00

Prices 25 cents more per pair west of Rocky Mountains.

Sizes vary by steps of ⅛ inch above 6½ inch size.

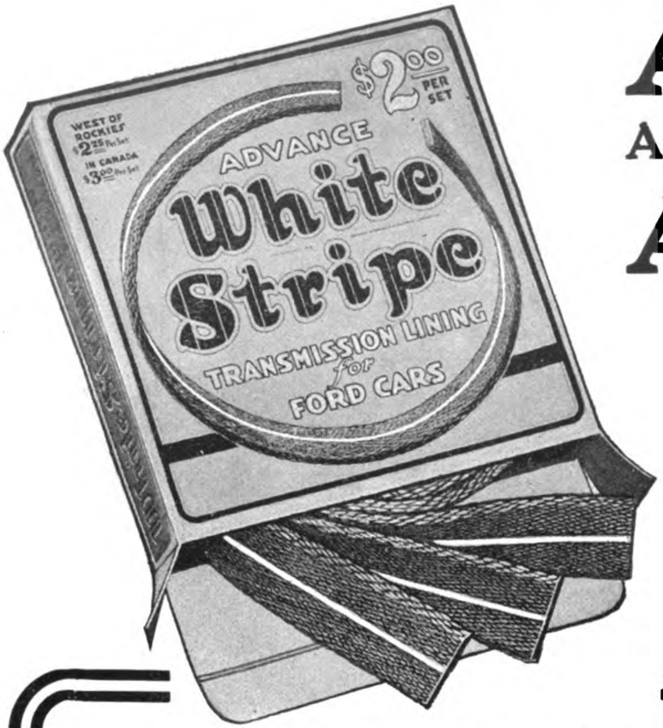
CONAPHORE SALES DIVISION
EDWARD A. CASSIDY CO., MGRS.
Madison Ave. and 40th Street, New York City

NO GLARE
RANGE 500 FT.

CONAPHORE

PIERCES FOG
AND DUST

CORNING GLASS WORKS—WORLD'S LARGEST MANUFACTURERS OF TECHNICAL GLASS


$2.00 PER SET
WEST OF ROCKIES $2.25 Per Set
IN CANADA $3.00 Per Set
ADVANCE
White Stripe
TRANSMISSION LINING for FORD CARS

Advance
Automobile Accessories Corporation
Announces Another Big Money Maker

"Next Best to Cork Insert"

Here is important news to every jobber, dealer ***and Ford owner.*** A far better transmission fabric for use in Ford cars has been produced. After months of research and experiment the Advance chemists have made a great discovery. They have developed a chemical treatment which makes transmission fabric resist the scalding hot oil. IT STAYS SOFT AND KEEPS ITS BRAKING EFFICIENCY. They also have perfected the method of applying the new treatment so that it penetrates every tightly-woven fibre.

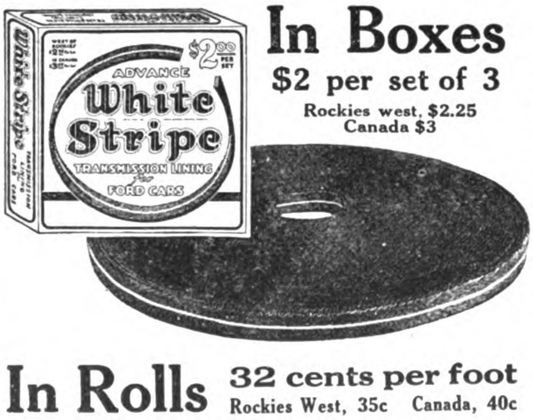
White Stripe TRANSMISSION LINING for FORD CARS

Means More Money to the Trade on Ford Lining Sales

It will change more of your business on Ford lining from the no-name kind to the trade-marked kind. It will mean more money to you and better value and satisfaction to the consuming trade. Being sold both in boxes and from the roll, it answers every need of dealer and consumer.

Jobbers will want to catalog White Stripe Lining. Attractive electros have been prepared and are awaiting your request.

White Stripe is bound to prove another big money maker for the trade. First—because it is the best transmission fabric for use in the Ford car ever produced. Second—because every foot of the lining is marked by the distinctive white stripe for ready identification.



In Boxes

$2 per set of 3

Rockies west, $2.25
Canada $3

In Rolls

32 cents per foot

Rockies West, 35c Canada, 40c

Send Coupon for Set of White Stripe Lining

White Stripe fills a real need. It supplies the trade with another popular and fast selling accessory. It supplies the Ford owner with lining for the car that will stay soft and hold its good working qualities longer than any other plain fabric.

ADVANCE AUTOMOBILE ACCESSORIES CORP.
Dept. L 3-1, 56 East Randolph St., Chicago

For Ford Owners

Enclosed is $.................. for set of three White Stripe Transmission Linings for Fords.

Name..

Address ....

City........................State..................

For Dealers

Send sample set of Advance White Stripe Transmission Lining through following jobber.

....

Name..

Address ....

City........................State..................

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., NOVEMBER, 1918 No. 7

Our Prosperity Depends Upon Foreign Trade Policy

Nation, Industry and Commerce Must Be as United as in War Activities to Gain Supremacy of the Markets Abroad—Same Degree of Confidence and Cooperation Will Result in Wonderful Era of Business Success.

WHATEVER we believe is generally based on our estimate of a condition—it is good if we think it good, and bad if we think it bad. This applies practically to business, to industry and commerce, for the prosperity of either or all are dependent upon the belief (opinion) of the people. The prosperity of this country depends entirely upon the people, and there is every reason to believe that they will make the most of the opportunity to keep the United States in the lead of all other nations of the world.

But this prosperity is not to result from individual example or activity. It must be, to deal with the conditions that will obtain here and in this country, brought about by the government, industry and labor uniting in whatever movement will be best for the largest number of people. We have had numerous illustrations of what patriotic cooperation can accomplish. We have raised enormous armies and equipped them; we have developed our navy to proportions that make it unqualifiedly second in naval strength; we have sold the largest issues of national securities ever offered to a people; we have financed our allies; we have provided food for them and for starving millions; we have engaged in charitable and welfare work with the armies and navies on scales never believed practical or possible.

People Know What Unity Means.

All of this has been done by the individual, the family, the business concern, the commercial or industrial organization, and hundreds of bodies created for the purpose of stimulating national unity in whatever the government has determined was best or was necessary. We have organized, adopted systems and methods, have increased efficiency and practised economies for the good of the nation. We have accepted whatever we have been asked to accept without remonstrance.

Because of this wonderful national spirit and unity the world's war has been won, and with such an illuminating example of possibilities fresh in mind no sane person would advocate destruction of all that has been developed and perfected and a resumption of industrial and business conditions such as obtained previous to the beginning of the European war.

Foreign Trade Will Be Keen.

By this is meant that from now on the nations of the world will engage in the keenest commercial and industrial competition ever known. Each will seek to produce so far as is possible what it requires, will purchase in foreign markets only what it cannot itself produce, and will endeavor to sell all that can be offered to other countries. Each will endeavor by legislation and regulation to protect its own industries and obtain whatever commercial advantages can be gained.

There is no reason to discount the statement just made. In fact, there is ample substantiation of it. This leads to the logical conclusion that the government, industry, commerce and labor must unite, and with the same cooperation and with the same patriotism that carried the American army to victory in France; develop trade and business to such a degree that we will dominate the markets of the world.

If we as patriots and as a nation believe that this degree of prosperity is essential and necessary, there can be no obstacle that will prevent its realization—the only requirement is to believe that it can be obtained and unitedly we can obtain it. There need be no sacrifice, no limitations of personal liberty or even inconvenient economies.

This Statement Is Not Radical.

There are those who may assume this statement radical, but they should remember that every other nation has to deal with practically the same condition, and the people who would be guided by precedent and custom or tradition will lack every advantage that will obtain from commercial and industrial unity in what may be regarded as economic competition.

There must be realization that in time of peace industry is the fountain from which prosperity is drawn. Unless industry has confidence business must be depressed. If confidence is dependent upon the opinion or action of the individual, long periods must elapse before anything like unity can be brought about, and even then it has not the stability that would obtain were it nationally guided and advised.

Operations on an Enormous Scale.

The business man who believes that he can operate, at least with reference to foreign markets, as before the war has not the least foundation for such belief. He must understand that without large exports American industry would shrink greatly. The nation must find consumers for its products, and this can be done abroad. But these cannot be found, nor when found retained, unless there are qualities or prices that appeal to buyers.

Whatever is undertaken in foreign trade must be on a large scale, at least so far as the nation is concerned, because this development of the markets of other countries is of vital importance. The need is so great that it is quite beyond the individual, or concern, or syndicate, to cope with, for upon its success depends the future prosperity of the entire country. In other words, what was optional with business men has become a national necessity—a need so great that it must be dealt with with the same spirit and unity that was manifested in prosecution of the war. The people have never failed to meet every emergency. Industry and commerce have demonstrated the greatest loyalty. There is no reason why the nation should not unitedly exploit foreign markets, the policies of the government being determined upon commercial and industrial needs and not upon political expediency.

Proposition Is Not Political.

Once a main policy has been established it will be possible to deal with detail. The proposition is not political in the sense that it should be advocated or opposed by political parties. It is a question of American business supremacy, in which everyone is vitally concerned, by which all will be directly affected, and in which all must do his or her part, for logically the people will share in whatever degree of prosperity shall obtain, just as they must share in whatever shall result through failure to gain these markets.

One must remember that England, France, Italy and other nations of less importance has given careful consideration to commercial development. The best minds have studied the subject and the resources of these countries from every practical aspect. No phase has been overlooked. Organizations have been perfected and developed. In each instance the nation is cooperating with united industry. So far as possible any legitimate business proposition is given equal consideration. The governments are even prepared to financially support whatever has promise of future development.

Must Have Big Financial Policies.

The competition for foreign trade may be between friendly nations, but it will be no less keen. There will be no possibility of trading upon sentiment or sympathy. It will be carried to the survival of the fittest. American enterprise, ingenuity, methods, and even resources, will be taxed to the utmost. The fact is that although the United States is a creditor nation, it must loan large sums that are needed abroad for rehabilitation of devastated and financially exhausted countries, and it must finance commercial operations with many of the other states, which will necessarily mean cooperation of capital. The government can and must encourage financiers to support foreign trade. It must have financial policies that will be promotive and protective.

One must understand that the prosperity of the domestic market will be in ratio to the prosperity of the export trade. But unless we can dispose of all we produce industrially there must be stagnation. Then logically one endeavor should be to control production so far as this may be practical, that there shall be so far as is possible no sacrifice or loss.

Trade Policies Revolutionized.

One may comment that what has been stated is contrary to custom or precedent. To this reply must be made that the world's war has revolutionized industrial and commercial policies and methods. Unless the conditions that now and shall obtain shall be met by a nation as united for business and trade as it was in war, then we shall fail.

But America knows no such word as fail. It only knows success. Yet all depends upon the willingness of business men to continue cooperation with each other and with the nation. They have proven their faith in the country in warfare. That same faith in time of peace, and knowledge that they will all share in whatever measure of prosperity they bring about, will be irresistible.

Confidence is what is needed—in the nation, in themselves and in each other. With this confidence there can be no doubt as to the industrial and commercial supremacy of the nation.

LARGE ADDITION TO BEST TRACTOR PLANT.

A large addition to the works of the C. L. Best Gas Traction Co., San Leandro, Cal., is now nearing completion. The new structure will cover a ground area of 31,150 square feet, and of this all save 5400 square feet is to be devoted to expansion of the machine department. The plan of the company is to give over a large part of the new shop to machine work on the "25" type tractor, a size for which there is much de-

WANT PATTERN AND TOOL PLANT AT LOUISVILLE.

Louisville, Ky., has what is known as the "Million Dollar Factory Fund of Louisville, which had been created for the purpose of attracting industrial concerns to that city. Tempton Aubuchon, general manager of the fund, announces that a special committee, composed of representatives of a number of large manufacturing concerns, has been authorized to negotiate with manufacturers of tools, dies, wood and metal patterns, with a view of locating a tool and pattern plant in the Louisville industrial district.

The need of such a concern is acute, statement being made that during the past few years 59 different metal working plants have greatly increased in proportions. The committee is now negotiating with several companies and may induce one to establish itself in Louisville or vicinity.

LANSING COMPANY'S INDUSTRIAL TRUCK TRAILERS.

The Lansing Co., Lansing, Mich., which has been building electric industrial truck trailers of the Reynolds type to fill a government order, has received a large additional order for these vehicles. With this the plant is on a 90 per cent. war basis. Of the production 70 per cent. is sent directly to the government, and 20 per cent. is sent indirectly. The new contract requires the production of 400 trailers a week until the order is filled.

CHICAGO PNEUMATIC TOOL CO.'S BIG MORTGAGE.

The stockholders of the Chicago Pneumatic Tool Co., Chicago, have authorized the issuance of six per cent. refunding mortgage bonds at par, not to exceed $5,250,000, under mortgage deed of trust to the Central Trust Co. of Illinois, or such other company as may be designated by the directors, the proceeds to be applied to the extension of plants and the retirement of remaining outstanding bonds under the existing mortgage.

MILLER IS CLEVELAND NEW ENGLAND MANAGER.

R. J. Miller, formerly connected with the Studebaker Corporation, has been appointed district sales manager for New England for the Cleveland Tractor Co. to succeed H. S. Ketcham, who recently resigned that position. Mr. Miller's headquarters are in Boston with A. H. Sowers, who is agent for Eastern Massachusetts for Cleveland tractors.

CHIEF MOTOR COMPANY OF PORT HURON.

The Chief Motor Co., Ltd., of Toronto, Ont., has been incorporated with a capital of $1,000,000 and it has located at Port Huron, Mich., where it will operate a plant for the production of gasoline engines of a type adapted for truck and tractor propulsion. It will employ at first a force of about 200 hands.

FULLER & SONS MANUFACTURING CO.'S SERVICE DEPARTMENT.

Announcement is made by Fuller & Sons Manufacturing Co., Kalamazoo, Mich., manufacturer of clutches, transmission gearsets and control members, of the appointment of O. E. Harmon as service manager, who is now directing the activities of that department. M. E. Fuller has been appointed employment supervisor, and the employment department has been organized under the direction of Dr. Blackford, who is known internationally as an employment expert. Statement is made that the company expects to greatly increase the efficiency of its plant, insure better production and improve the standard of service to customers to the greatest possible degree.

CLEVELAND SECTION, A. S. M. E.

The American Society of Mechanical Engineers has established a section in Cleveland, known as the Mechanical Section of the Cleveland Engineering Society. The petition for this section was made jointly by members of the local society and by members of the national society, resident in Cleveland. This new section comprises the towns or cities of Akron, Barberton, Bedford, Chardon, Cleveland, Cuyahoga Falls, East Cleveland, Elyria, Hudson, Kent, Lakewood, Lorain, Massillon, Quarryville, Ravenna, Sandusky, South Euclid, Wickliffe, Willoughby and Wooster, totaling a society membership of approximately 260 at the present time, the sixth largest in the country.

AUTO INDICATOR CO. FORMED.

W. W. Huelster is president, I. C. Cilley vice president, and Joseph Renihan is secretary and treasurer of the Auto Indicator Co., a concern recently organized at Grand Rapids, Mich., for the manufacture of an instrument known as an automobile indicator. The company was organized by the above officers and V. I. Cilley, who is general manager, and James Ritzema and Dr. E. O. Cilley, who, with the others named, constitute the board of directors.

BEMENT JOINS THE TRANSPORT SERVICE.

The activities of the Lincoln Highway Association, which practically ceased at the beginning of the war, will not be resumed until normal conditions obtain. A. F. Bement, secretary of the organization, has enlisted in the Motor Transport Corps and is now at the officers' training camp at Jacksonville, Fla.

CHIEF MOTOR CO. HAS CONTRACT FOR TRUCK ENGINES.

Statement is made that the Chief Motor Co., Port Huron, Mich., has been awarded a contract to construct 4000 engines to be used in the construction of trucks for army transport service. The company has planned to produce these as rapidly as is possible and its working force will be augmented with this in mind.

BISHOP WHITE DEAD FROM PNEUMONIA.

Bishop White, treasurer of the Pratt & Cady Co., Hartford, Conn., and vice president and general manager of the American Chain Co., Bridgeport, Conn., died at his home at West Hartford, Oct. 27, from pneumonia, aged 33 years. He was born at West Hartford and immediately after being graduated from college he engaged in banking in New York City, and later became a manufacturers' representative in automobile supplies. He became associated with the Weed Chain Tire Grip Co. in 1911, and when the American Chain Co. was incorporated in 1912 he went to Sherrill, N. Y., to organize and manage the concern. Later this company absorbed the Weed company and the plant was established at Bridgeport. He then became vice president and general manager. He reorganized the Pratt & Cady Co. in 1914. He was widely known in the automotive industry and with the trade.

ROMAINE A DIVISIONAL DIRECTOR.

W. L. Romaine has been appointed a director of the division of oil conservation of the Fuel Administrator for Wisconsin, this being a new office created for the purpose of administration of regulations and rules having to do with the uses of fuel, lubricating and other oils, as well as gasoline and all petroleum products. Mr. Romaine is secretary of the Badger-Packard Machinery Co., Milwaukee, Wis.

DES MOINES WILL HAVE TRACTOR SHOW.

The Des Moines, Ia., Thresher and Tractor Club, an organization of dealers in farm power machinery and implements, will hold its first exhibition in that city the week of Jan. 13-19, under the management of H. J. Clark.

WANT POWER VEHICLE TAX STRICKEN FROM WAR REVENUE BILL.

A proposition will probably be made to Congress that the proposed tax of five per cent. on all power vehicles sold, to be paid by the owner, as well as the Federal license or excise tax, also payable by owners, be stricken from the war revenue bill because, first, power vehicles have been demonstrated to war, and second, were taxes imposed this would retard production of machines to a considerable degree and would undoubtedly affect the industry in resuming manufacturing operations.

DEARBORN TRUCK CO. BUYS SMITH MATERIALS.

The materials of the Smith Motor Truck Corporation, sold by order of the court of bankruptcy, has been purchased at auction sale by the Dearborn Truck Co., Chicago, and will be removed to the new Dearborn plant at Chicago. The Dearborn company is now building worm driven trucks of 1½ and 2½ tons load capacity, and chain driven trucks of one and two tons load rating.

Triplexd Hose Shown at a Convention of Oil Men

What is stated to be the most complete display of gasoline and oil hose ever shown was made in booths 28, 30, 32, the space occupied by the Metal Hose and Tubing Co. of Brooklyn, N. Y., at the convention of the Independent Oil Men's Association, which took place at the Hotel Biltmore in New York City, the week beginning Oct. 7. This convention was attended by delegates from all sections of the country and was an event of unusual importance to them and the concerns holding membership in the association.

Included in this display were sections of all sizes of the special hose, Triplexd, which is produced exclusively by this company, which were shown in a great variety of complete lengths, and cut section that showed the construction to all who desired that information.

A section of a monster loading hose, such as has been ordered by the government for loading and unloading oil tank steamers, by gravity and by pumpage, was conspicuously shown in the center of the display, and close to it was a standard on which was an exhibit of filling station hose of all sizes.

In addition there was a display of large size loading and unloading hose for vessels, for tank cars and tank wagons, and filling station hose for every type of equipment. Among the exhibits was a length of Triplexd gasoline hose that had been sold more than three years before and had been used by the purchaser for three years, which was still in such excellent condition as to warrant the claim that it was still very serviceable.

In connection with the exhibit were demonstrations of the flexibility of the hose, the adjustment of connections, and the other details of use interesting to users of gasoline and oil hose. The exhibit was attended by a staff of salesmen qualified to afford every form of information desired by inquirers. Of the manufacturers of storage equipment making exhibition five of the six, or 83 per cent., displayed Triplexd gasoline hose as the standard furnished by them to purchasers of their products. The accompanying group of illustrations was made from photographs taken during the convention and show the exhibits of the different manufacturers of storage equipment, much of which is especially adapted for gasoline filling stations.

A CORRECTION.

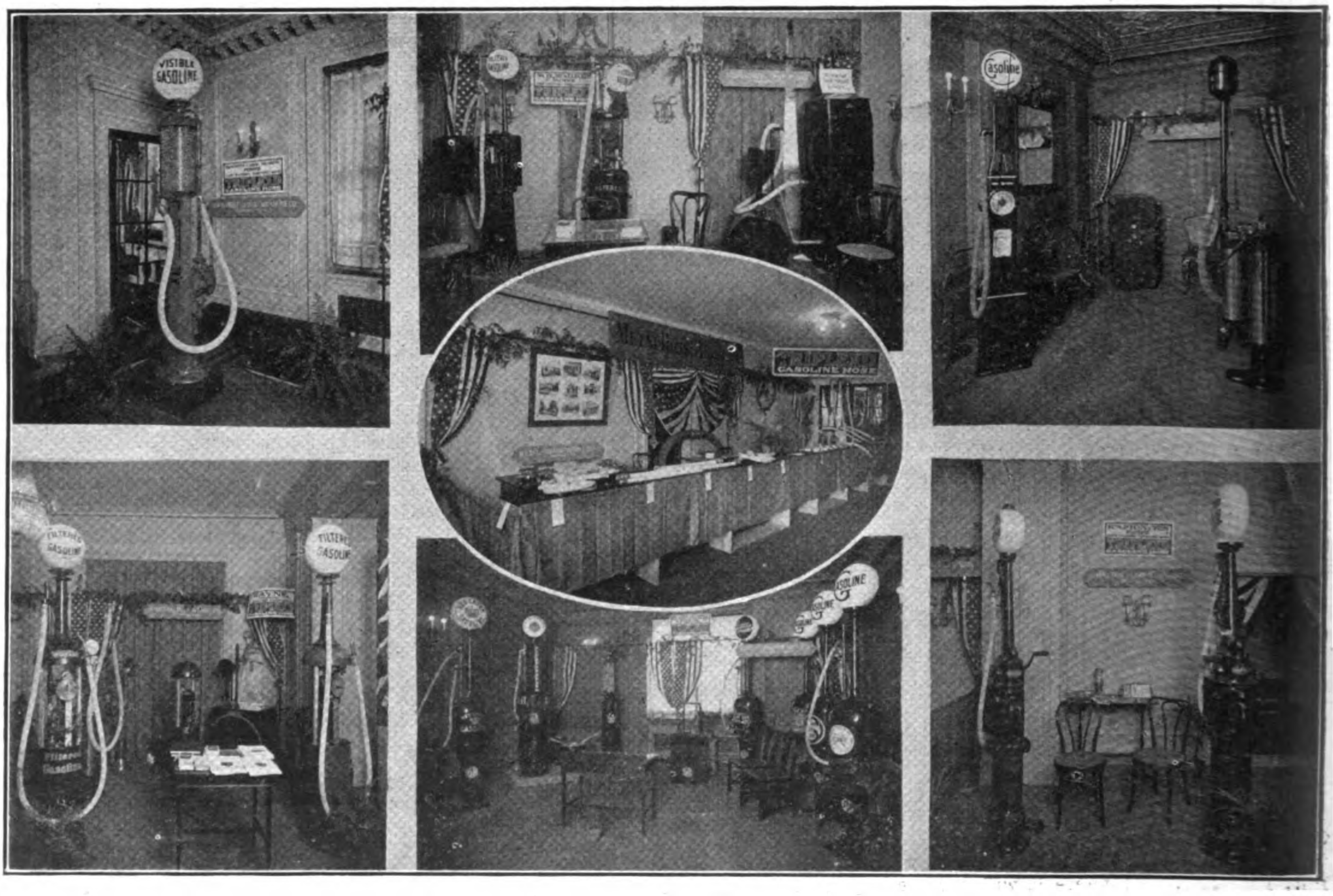
In the September issue of the Automobile Journal was published a reference to All-American trucks, which included the designation "AA," which seemingly led some to the belief that this truck was of the "Class AA" trucks, built by thousands for the United States army service. The "AA" was an abbreviation of the All-American trade name used inadvertently by the manufacturer, with no intention of creating the belief that the truck was of the type designed for and built exclusively for army transport.

PATENT SUIT DECISION FAVORS STROMBERG CO.

A decision has been handed down by the United States Circuit Court of Appeals for the Seventh District at Chicago, in the suit of the Stromberg Motor Devices Co., Chicago, against the Zenith Carburetor Co., Detroit, the claim being that the Zenith carburetor design infringed upon the Ahara patent owned by the Stromberg company. The contention of the plaintiff was sustained by the court and an accounting of profits by the Zenith company was directed.

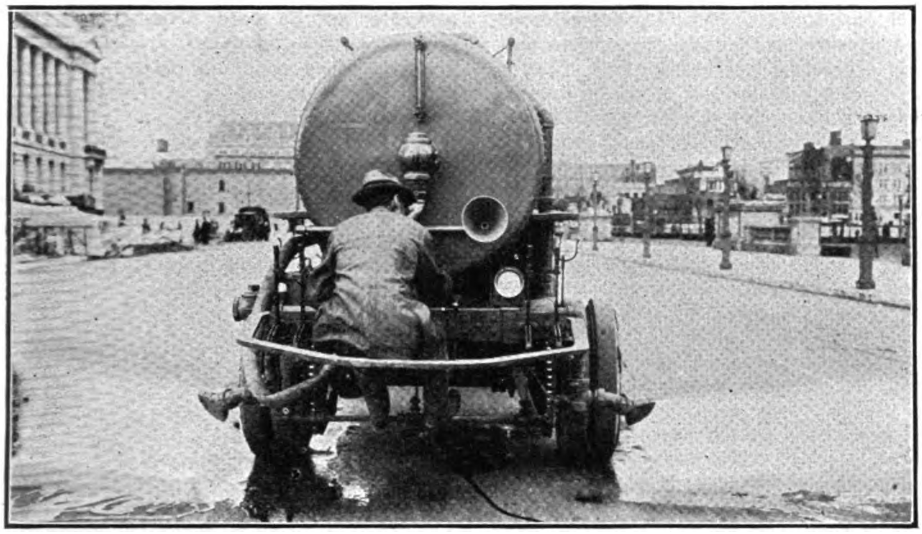
The Lansing Forge Co., Lansing, Mich., has increased its capital from $100,000 to $300,000, which will greatly increase the scope of its operations and its facilities for production.

The Canadian Johns-Manville Co., Ltd., has been organized at Montreal with capital of $2,500,000.



Exhibits of Manufacturers of Gasoline and Oil Hose and Storage and Filling Station Equipment at the Annual Convention of the Independent Oil Men's Association at the Hotel Biltmore, New York City. Upper Left, Guarantee Liquid Measure Co., Rochester, N. Y.; Upper Center, Milwaukee Tank Works, Milwaukee, Wis.; Upper Right, S. F. Bowser & Co., Fort Wayne, Ind.; Center, Metal Hose and Tubing Co., Brooklyn, N. Y.; Lower Left, Wayne Oil Pump and Tank Co., Fort Wayne Ind.; Lower Center, Gilbert & Barker Manufacturing Co., Springfield, Mass.; Lower Right, Dayton Pump and Manufacturing Co., Dayton, O.

Motor Apparatus for Street Cleaning Operations



Rear View of Flusher Used by the Street Cleaning Department of San Francisco, Showing the Steel Guard Installed to Protect the Operator of the Flushing Control.

Municipalities the nation over have accepted generally the utility of power driven apparatus for varying departmental work, and while many manufacturers produce machines designed for what may be termed standard service, numerous municipal administrative bodies have approved the ideas of departmental heads and permitted them to add to standard equipment fittings that are based on knowledge of conditions and seemingly have much to recommend them. By this is meant that practical men have good ideas relative to their own work, and these may be adapted to machines of all types in similar service, although the adaptations may differ somewhat.

The street cleaning department of the department of public works of San Francisco, Cal., uses several power driven tank flushers of a type that require crews of two men, one to drive and the other to operate the flusher control at the rear end of the machines. The separate control was preferred because there was belief that in heavy traffic the driver could not do the flushing as satisfactorily with a machine that diverted his attention from driving to avoiding vehicles and pedestrians.

These apparatuses have seats at the rear, where the valves are regulated by the operators, but very brief experience established that there was constant danger for them, for reckless drivers frequently approached too closely and had no thought of the possibility of injury of the men at the rear of the tanks. To protect the operators heavy steel guards were attached to the main frames of the chassis, sufficiently removed from the seats to safeguard the men in the event of collision, whether approach is from the side or the rear.

The efficiency of the department has been greatly increased by the use of flushers, for these machines can flush from 15 to 20 miles of paved street a day, or at least 100 miles a week. The work is exceedingly well done. The flushers are worked with Eductor cesspool cleaners, which are used for removing the contents of cesspools and sewer catch basins, this being done so far as is possible by pumpage. In one of the two accompanying illustrations an Eductor cleaner is shown with the crew cleaning a sewer pocket, and the other shows the rear end of a flusher with the guard protecting the operator controlling the valves.

W-M-B MACHINE COMPANY A NEW DETROIT CONCERN.

Robert Wide of the Michigan Gear and Engineering Co., Wakefield R. Meade of the Northway Motor and Manufacturing Co. and William F. Beach, all of Detroit, have formed the W-M-B Machine Co., with capital of $15,000, and have begun general operations in that city.

ACME TRUCK MAKES UNUSUAL LONG HAUL RECORD.

Drayer & Co., 26-28 Attorney street, New York City, recently completed a haulage job of special interest to truck owners and drivers for several reasons.

This work consisted of hauling approximately 113 tons of paper from New York to Washington, a distance of 225 miles one way, or a round trip of 450 miles. By carrying 4½ tons to a load, Drayer & Co. completed the job in 25 round trips. The running distance on this job was in excess of 11,250 miles, and the average consumption of gasoline was nine miles to the gallon.

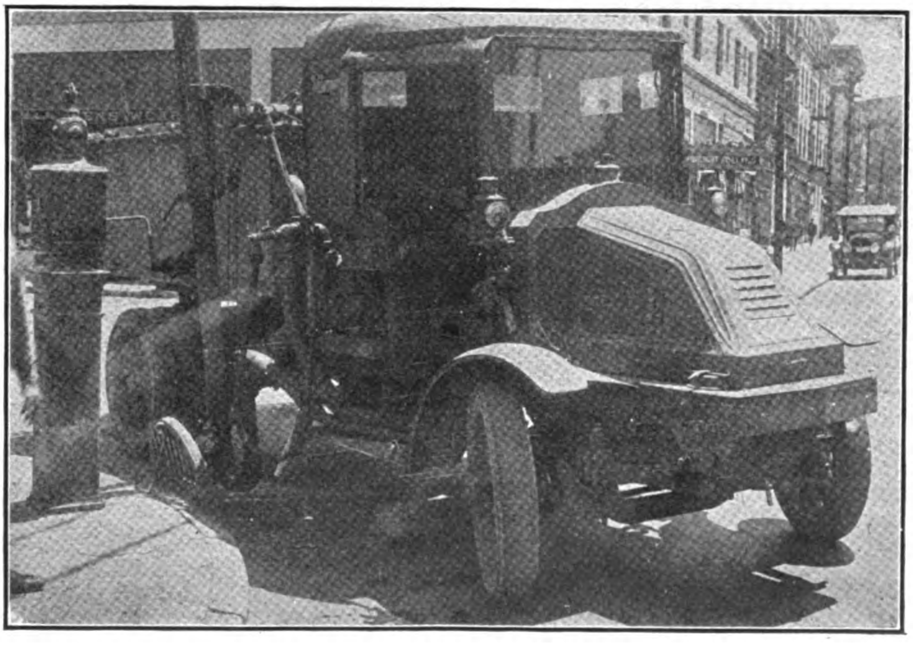
It is also worthy of note that in this entire haul there was no service expense and no stops from start to finish, except those necessary for gasoline, oil, etc., and for loading and unloading. The truck used was a 3½-ton Acme.

FOREIGN TRADE RECORD SHOWS LARGE INCREASE.

The summary of the foreign trade for September, announced by the Department of Commerce, shows that new records were reached, this applying both to imports and exports. The imports for the month totaled $262,000,000, which was an increase of about $26,000,000 as compared with September, 1917, and the exports were valued at $550,000,000, an excess of $288,000,000 over imports, and an increase of about $100,000,000 over the same month of last year.

R. C. Kimball, district manager, is in charge of the office established in the David Whitney building, Detroit, by the Lakewood Engineering Co., of Cleveland, O., as factory transportation expert.

Henry Ford & Son, Dearborn, Mich., is now producing an average of 170 Fordson tractors a day, this being a weekly total of 1020.



Eductor Equipment on a Kelly-Springfield Chassis, Used with the Flushers, for Cleaning Cesspools and Sewer Catch Basins by the San Francisco Street Cleaning Department.

COURT DECISIONS OF AUTO CASES

By J. Simpson.

The following summaries of recent court decisions relating to the use of automobile vehicles are of interest to all citizens, from the fact that they deal with conditions that might reasonably be paralleled in every day experience. Because millions of passenger cars and freight trucks are in use in America there is constantly increasing litigation and determinations that establish rights and interpret statutes in each of the different states. These summaries will be published at intervals. In briefest terms facts on which decisions are based are stated and the authorities are quoted, so that reference can be made for more extended presentation should this be necessary.

Written Agreement of Sale of Garage and Equipment—Parol Evidence.

A bill of sale of a garage and its equipment under seal, contained a covenant that the seller was the lawful owner of the goods and chattels sold, that they were free from all incumbrances, that he had a good right to sell them and that he warranted them against the lawful claims and demands of all persons.

In an action by the purchaser the plaintiff relied on an oral warranty that the articles constituting the equipment of the garage cost the defendant the amount set forth in the inventory.

There was no evidence of fraud and the plaintiff received all the merchandise mentioned. The trial judge ruled that the plaintiff could not recover and directed the jury to return a verdict for the defendant; the plaintiff excepted.

The Massachusetts Supreme Court, Carpenter vs. Lugden, 119 N. E. 959, overruled the exceptions, holding that as the contract of sale was in writing and contained the entire agreement of the parties, it could not be contradicted by oral evidence that the defendant warranted that the price of the chattels sold was the price paid by him. While parol evidence is admissible to identify the subject matter to which a written contract relates, the evidence of the cost of the equipment was not offered for this purpose. It was offered to show an additional warranty not contained in the written bill of sale, and was therefore held inadmissible.

Suit for Repairs on Automobile.

Suit was brought in the Missouri courts to recover the value of material furnished and work performed by the plaintiff on the defendant's automobile. The defendant took the car, which was not in good running order, to the plaintiff, who was in the business of locating automobile troubles and in repairing cars.

The plaintiff undertook the work and agreed to put the car in running order. His bill was for $275, upon which he was paid the sum of $141.80, leaving a balance of $133.20. The defendant pleaded a counter claim in two counts: First, that the plaintiff agreed to repair the automobile and put it in good running order and estimated the charge at $40, which was paid, and that the defendant at the plaintiff's request advanced to him thereafter the further sum of $100 on the repairs, but the plaintiff failed to repair the car and put it in good running order, and, therefore, the defendant asked judgment against the plaintiff for $140; second, that the plaintiff agreed to repair the automobile and put it in good running order, but failed to do so, depriving the plaintiff of the use of the car for 35 days, and requiring the defendant to incur an expense for the repair of the automobile by others, all to his damage in the sum of $350.

The case was apparently tried on the theory that the plaintiff had abandoned his counter claim and the jury returned a verdict for the plaintiff for $105.05. On appeal it was held that the defendant could not then complain that his counter claim was ignored in the instructions given by the trial court, and judgment for the plaintiff was affirmed. Touser vs. Thayer (Mo.), 204 S. W. 27.

Liens for Repairs—Rights of Partners.

In replevin to recover an automobile where the defendant claimed a lien for repairs, it was held that the defendant was not entitled to a judgment establishing a lien where it appeared that the defendant was a member of a partnership which had done the work, in the absence of a showing that the claim had been assigned to him. Stoecker vs. Price S. & A. Co. vs. Erving (Mo.), 204 S. W. 29.

Liens for Repairs.

The Oregon Supreme Court holds, Pierce-Arrow Sales Co. vs. Irwin, 169 Pac. 129, that where a repairer was given an automobile for a complete overhauling and the owner was permitted to use it before it was tested in the usual manner, and the owner returned it and requested more work to be done on it, the machine was not "delivered" under the Oregon state, L. O. L., section 7498, relating to time for filing notice of lien after delivery, until the work was completed.

Waiver of Lien for Repairs.

A garage which voluntarily surrenders possession of an automobile on which repair work has been done loses its lien securing payment of the amount due for repairs; and where the garage again comes into possession it cannot hold the car to protect itself against the nonpayment of such repair charges. White vs. Texas Motor Car and Supply Co., Texas Court of Civil Appeals, 203 S. W. 441.

ANOTHER FORD TRACTOR PLANT NEAR ALBANY.

According to statement that has been widely circulated Henry Ford & Son, builder of Fordson tractors, has acquired an option to purchase Green Island, in the Hudson river, near Albany, N. Y., which is to be the site of a plant which will build tractors for distribution in the eastern section of the country and for export.

The statement is also made that work on the erection of the buildings will be begun about Jan. 1 and that eventually 15,000 persons will be employed. The fact that option has been taken is not confirmed as yet by the company. Incidentally one may point out that the company already has a main plant at Dearborn, Mich., has also purchased a site for another plant at Hamilton, O., and there are rumors that there are to be two or three others established in other parts of the country, as well as a possibility of another in Mexico if the proposition submitted to the Mexican government is approved. The Ford interests have also a plant at Cork, Ireland, which is said to be known as the Trafford Engineering Co., which is expected to be given over to Ford cars.

LIGHTING SYSTEMS FOR FARM RESIDENCES.

The Litscher Lite Corporation has been organized at Grand Rapids, Mich., with Christopher J. Litscher president and treasurer, Fred N. Rowe vice president, W. Russell Patton secretary and sales manager, and these, with Charles J. Kindel and Elmer L. Kinsey, directors. The corporation has located a plant in a building once occupied by the Michigan Wheel Co. and has acquired a substantial interest in the Monarch Storage Battery Co. It will manufacture lighting systems adapted for farm residences, these being individual plants of differing capacities.

A. H. Doolittle, who was sales and advertising manager for the Zenith Carburetor Co., Detroit, has resigned to associate himself with the publication division, service department of the Bureau of Aircraft at Detroit.

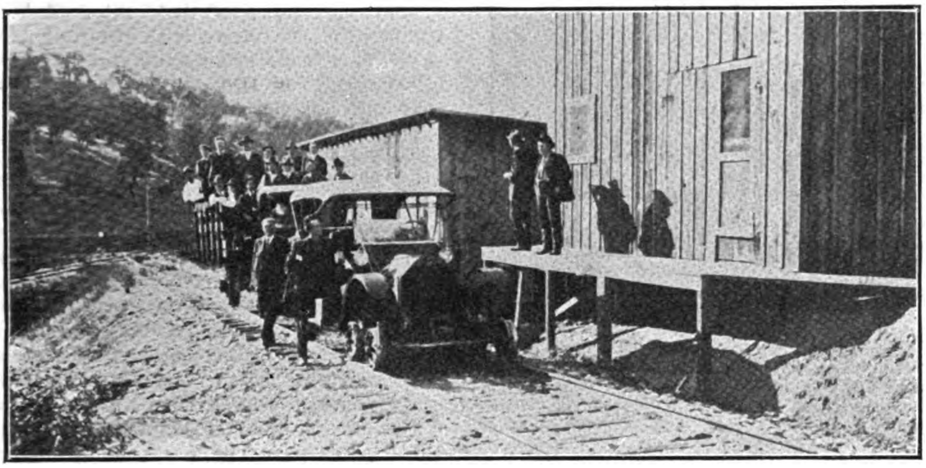
PACKARD COMPANY'S NET PROFITS $5,616,701.87.

The net profits of the Packard Motor Car Co. and its subsidiaries for the year ending Aug. 31 of this year are stated in the annual report of the company to have been $5,616,701.87. After payment of dividends amounting to $560,000 on seven per cent. preferred stock, and $710,382 on common stock, the profits, with a surplus of $9,311,541.04, left a total surplus to the credit of the company of $13,657,860.61.

The current assets, including inventories and materials at the plant at Detroit and branches, were $36,494,581.11, and the current liabilities were $13,930,423.78. Gross assets of $52,879,084.65 is shown by the consolidated balance sheet. The total capital stock issued is $19,656,930, and the company has outstanding $8,000,000 seven per cent. preferred stock and $11,813,430 common stock.

The Cleveland Galvanizing Works Co., Cleveland, O., has changed its name to the Chain Products Co., but has not changed its personnel or management.

Trucks Convertible for Track and Road Work



Truck Chassis Equipped for Track or Road Work Used on the 68-Mile Railroad of the Hetch-Hetchy Water and Power Project of San Francisco. The Leading Machine Is Used for Carrying Passengers and the Rear Unit for Hauling Freights of All Kinds.

Extremely novel use is made of power truck and passenger car chassis by the engineers of the Hetch-Hetchy railroad, which is owned and operated by the city of San Francisco, Cal., and was built for the transportation of passengers and materials used in the construction of the great Hetch-Hetchy power and water project. The railroad is 68 miles long and extends from San Francisco to the work.

The machines have been adapted so that they are convertible and can be used on the railroad tracks or with changes of wheels driven on the highways. But practically all of their work has been on tracks, they taking the place as single units of what would ordinarily be independent power units—probably locomotives—and cars.

In the adaptation of the chassis the principal changes have been in the wheels. The forward wheels have been replaced by pony trucks, similar to those used on locomotives, which are each equipped with four small flanged wheels, and the rear wheels are fitted with flanges and drive the machines as originally designed.

The accompanying illustrations are of a train on the railroad, and a unit that is ready for turning. In the illustration of a train of two units the machine in the foreground is used exclusively for carrying passengers, and that attached to the rear of this unit is used for hauling express and construction material. In this the manner of coupling a power unit to a car is seen, this being similar to what is usually the vogue with railroads.

The other illustration shows a chassis equipped with a dumping body which is interchangeable with the body seen on the freight unit in the train of two machines.

In front of the rear wheels sand boxes are fitted with delivery pipes leading to the rails, and the discharge of sand is by compressed air that is contained in tanks just back of the drivers' seats. The machine can be driven forward at any one of the three speed ratios and reversed, and for this reason must be turned when a terminal is reached. This might be done with a track turntable, or by a "Y" track, but to turn it wherever it may be a very ingenious equipment has been devised. This consists of a turntable and frame attached to the main frame of the chassis between the front and rear wheels, the frame being somewhat longer than the standard track gauge of 56½ inches.

This turntable frame parallels the main frame normally, but it can be swung on the pivot a complete circle. The forward springs are attached to the side members of the frame of the pony truck, there being no change in the rear spring shackles. When driven on the track the weight of the chassis is carried on the pony truck and the rear or driving wheels.

To turn the machine the front springs are chained so that they will not sag from the weight of the pony truck. Then four jacks are placed under the main frame between the wheels and the turntable frame. With these the truck is lifted and blocking is placed under the ends of the turntable frame, as is shown in the illustration, and the jacks removed. When the wheels clear the ground the chassis can be swung on the turntable pivot and when turned the jacks are again used to lift the chassis and remove the blocking and lower the wheels to the track. The chains are removed from the pony truck and the turntable is secured to the main frame. The machine can then be driven on the track until turning is again necessary.

Seemingly turning is a long job, but the crew can do the work in a comparatively short time. The principal advantage is that the unit can be turned anywhere without additional track construction. The body of this machine can be changed to a platform or express type, or the chassis could be used with a passenger body if desired. The chassis can be converted from track to road service by removing the pony truck and the rear wheels and replacing the regular truck equipment. The railroad now has three chassis in service equipped with freight bodies and one for passenger service.

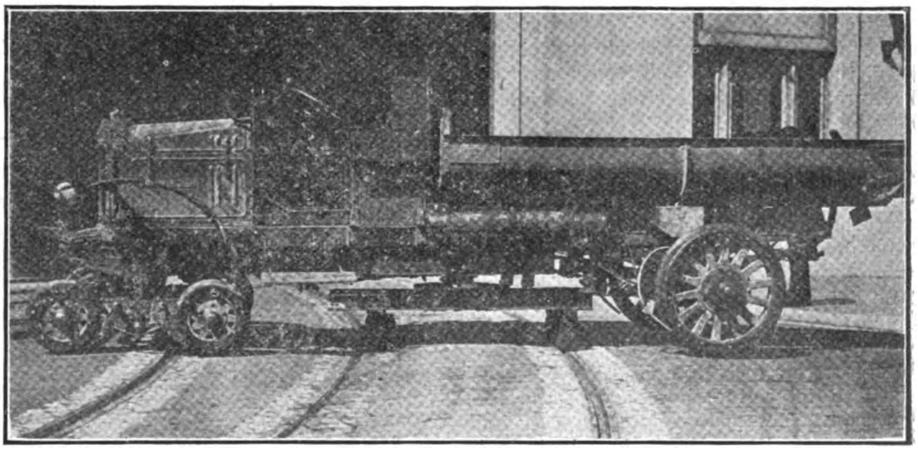
The chassis have many advantages as compared with any other type of power units, have ample speed and power for loads far in excess of what are hauled, and are always instantly available when needed. The operating cost is very small and but one man is required for each chassis or train.

GOVERNMENT ORDERS BODIES FOR MOTOR TRANSPORT.

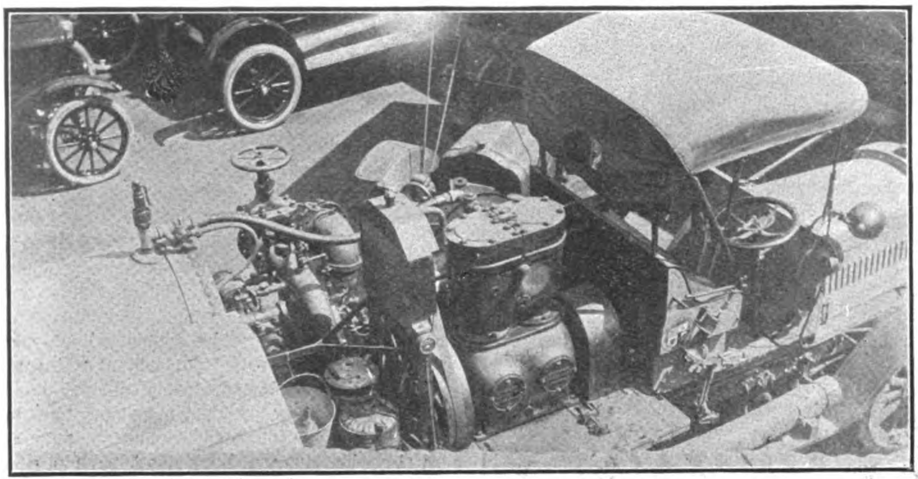
A large government order has been accepted by the O. J. Beaudette Co., Pontiac, Mich., to build two types of bodies for trucks and a touring body for passenger car chassis and production will be begun shortly. The company is now obtaining lumber for the work and arranging the equipment of its plant.

DIETZEL GOES TO ROWELL.

After service for several years as superintendent of the Waukesha Motor Co., Waukesha, Wis., A. W. Dietzel retired to become works manager for the I. B. Rowell Co., Waukesha, a concern engaged in manufacturing farm implements, tractor parts and starters for Ford chassis.



Truck Chassis Equipped with a Pony Truck in Place of the Front Wheels, and Flanged Rear Wheels, for Track Service on the Hetch-Hetchy Railroad, and a Turntable Permanently Attached Under the Main Frame. When Turning Is Necessary the Truck Is Jacked Manually, After the Front Springs Are Chained to Prevent Sagging, and When the Blocking Is Placed Under the Lower Turntable Frame the Machine Can Be Pivoted in a Circle.



"Close-Up" of Equipment of a Truck Fitted with Centrifugal Water Pump and Air Compressor for Operating Pneumatic Tools, Specially Designed for the Bureau of Water Works, Los Angeles, Cal. At the Left of the Compressor Radiator Is the Flanged Elbow of the Water Pump Intake, as Positioned When Not in Use; at the Left of the Centrifugal Pump Is the Small Air Pump and the Hose Connection with the Main Air Tank.

Combination Water Works Pumping Apparatus

An apparatus that is very unusual in design, and is said to be the only one of the kind in the United States, has been constructed for the use of the Bureau of Water Works of the city of Los Angeles, Cal. Los Angeles has one of the largest and most expensive water distributing systems of the nation, the water being brought a long distance from a mountain range through a very large aqueduct. The city itself covers an area much greater than any other city of similar population and the system was constructed with a view of meeting the requirements of rapid growth for a considerable period of years.

The water distributing system requires much more maintenance work than would be necessary in a city of smaller area. To expedite both construction and repairing a truck chassis was equipped with a large centrifugal pump for pumpage of any kind, and an air compressor for operating pneumatic tools and obtaining air pressure wherever this could be utilized in the work. The two accompanying illustrations show the chassis and its equipment, and the pump and compressor installed so that the detail can be distinctly seen.

The chassis is fitted with a double power transmission system, the one for driving the truck and the other for driving the pump and the air compressor. The double system is controlled by the two levers seen just below the side of the driver's seat. Many novel ideas are incorporated in the installation of the pump and the compressor. A speedometer from an automobile has been utilized to determine the speed of the compressor. The compressor has an independent cooling system in which is included a radiator removed from a Ford chassis, and the fan for this radiator is driven by a belt off the flywheel of the compressor.

At the rear of the chassis can be seen the storage tank for the compressor system, and connected with this tank is a small air pump that is used to prime the main pump with water.

The illustration of the detail of the equipment shows the radiator of the compressor cooling system, the flanged elbow of the main pump and its position when not in use. This also shows the small air pump at the left of the centrifugal pump and the hose connection between the tank and the air pump. One of the uses for the air compressor is to drive pneumatic drills for cutting asphalt and cement paving bases. Statement is made that the equipment has been proven very serviceable and economical, and the combination has fully justified the ideas of the engineer who conceived it.

The Edmunds & Jones Corporation, Detroit, manufacturer of lamps and brass specialties, has been authorized to make a one-story addition to its plant.

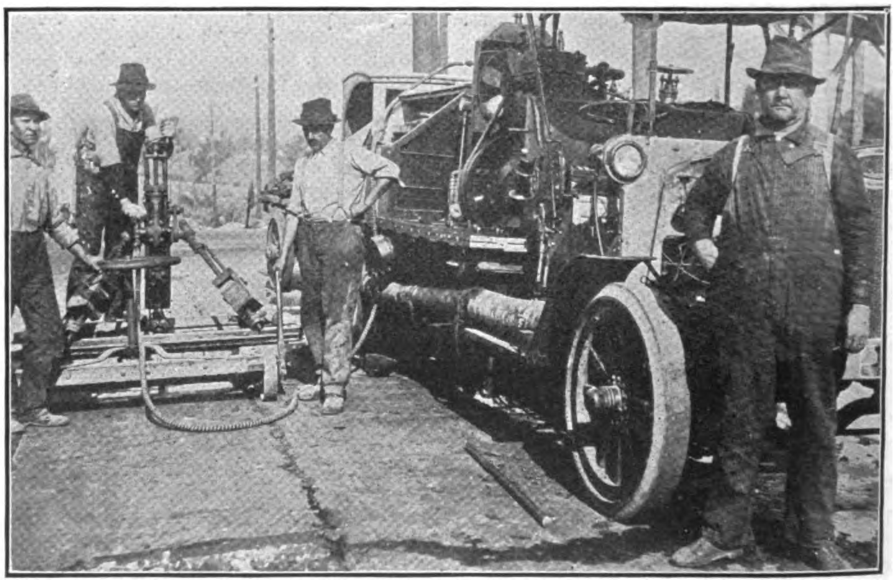
AFTER-THE-WAR NEEDS OF RUBBER INDUSTRY.

After-the-war needs are being discussed and determined so far as is possible by differing industrial interests, and because of the prominence of Col. Samuel P. Colt, president of the United States Rubber Co., his views with reference to the rubber industry are deserving of careful thought. In summary his opinion is that the rubber industry will be no exception to the other industries engaged in production of important commodities after the war. There must be marked recession in the prices paid for labor and material commodities like cotton. The stimulation of high prices brings into the field of competition after the war a number of smaller competitors whose business may not be as well founded as will be necessary to stand the shock of peace. All manufacturers will need ample reserves against recession of value in raw materials and finished goods on hand, and these reserves must be set aside during the war to avoid disaster.

CONTINENTAL MOTORS HAS YEAR'S ORDERS.

The Continental Motors Corporation, Detroit, has just paid to holders of common stock a dividend of 1½ per cent., this making atotal of six per cent. paid on common stock during the calendar year. Secretary W. R. Angell, advising the stockholders of the dividend, stated that the business of the company was very satisfactory, and that the orders ahead insured the operation of the Detroit and Muskegon plants until late in the autumn of next year.

The Nelson Bronze Co., Saginaw, Mich., has appointed Charles M. Smith, who was formerly connected with the Detroit Steel Castings Co., and the Michigan Steel Casting Co., superintendent of its foundry.



Combination Water and Air Pump Equipment of the Los Angeles Bureau of Water Works with Outfit for Cutting Asphalt and Cutting Concrete Bases Connected to the Main Air Supply and in Readiness for Work. This Machine Is Said to Be the Only One of the Kind in the World.

Official Interpretation of Various Points in the Application of Motor Car Taxation

OWING to the many different factors entering into the production of a complete automobile and the fact that there is no definite state of completion, considerable uncertainty existed as to how the new Federal taxes would apply. The fact that some trucks and some passenger cars might be delivered to dealers for sale to have bodies and other parts and equipment added to them later brought up another point of contention as to when and on what the tax would be levied, as also the point as to whether or not an advance in price made by a manufacturer to cover the tax would be included in the taxable value of the car.

Many Questions In Doubt.

These and many other questions regarding the Federal tax have been bothering dealers for some time and the National Automobile Dealers' Association, the largest organization of motor car dealers in the world, took up the matter to clear away the doubt that existed in the minds of so many of its members, particularly as to the application of the war tax as applied to truck chassis, extra bodies and other equipment.

In order to get an official construction on the matter, a letter was directed to the Treasury Department by the president of the N. A. D. A., and the following reply was received by B. C. Keith, deputy commissioner:

"Referring to your letter of Sept. 30, you are advised that automobile bodies, side cars for motorcycles, speedometers and other attachments and accessories to automobiles and motorcycles, are not taxable when sold separately, but they are when sold as part of an automobile or motorcycle or its equipment, whether standard or not.

Tax on the Complete Car.

"Also where a person other than the manufacturer of the chassis completes and sells an automobile, the tax must be paid on the complete car, less any tax already paid on the sale of the chassis.

"You are further advised that where a dealer, in order to reimburse himself for the tax paid by him to the manufacturer of the chassis, adds the exact amount of the tax to his invoice as a separate item, stating it to be the war tax, such amount may be excluded in determining the price for which the article is sold. But where the price of an article is increased to cover the war tax, the tax is upon the increased price. Or, if the dealer adds any different amount than the actual tax paid, no matter in what way or with what explanation, the tax must be calculated upon the dealer's total bill.

Status of Freight Bills.

"With regard to the inclusion of freight charges in the price upon which the tax is to be computed, you are informed that where the freight charges to a point of delivery are paid by the dealer, such freight charges, if billed as a separate item in the invoice to cover freight, need not be included in the amount upon which the tax is to be computed. However, as in the case of reimbursement of tax paid, if the price of the article is increased to cover freight charges, the tax is upon the increased price.

"Accordingly, where a dealer purchases a truck from the manufacturer for $1000, adds a body costing $400, and sells the complete car for $1900, plus $70 freight charges, plus $30 war tax, or $2000 in all, the tax is 3 per cent. of $2000, or $60, less the $30 tax already paid to the manufacturer upon the sale of the truck, making $30 tax. On the other hand, if the $70 freight charges and $30 war tax are billed as separate items, they need not be included in the amount upon which the tax is to be computed. The tax would then be three per cent. of $1900, or $57, less $30 tax already paid on the original truck, making $27 tax due upon the sale by the dealer of the completed machine."

Federal License Reduced.

In addition to the reduction in the taxes on motor cars and accessories, mentioned elsewhere in this issue, the Senate Finance Committee has also made a reduction in the Federal license as compared to the license tax as originally incorporated in the revenue bill by the Ways and Means Committee of the House of Representatives. This reduction cuts in half the proposal of the House bill and fixes the rates as follows:

Automobiles and Motor Trucks.

Up to 23 horsepower	$5
23 horsepower and not over 30 horsepower	10
30 horsepower and not over 40 horsepower	20
Over 40 horsepower	25
Motorcycles	5
Electric vehicles, per horsepower	2

LARGE INCREASE IN N. A. D. A. MEMBERSHIP IN LAST 3 MONTHS.

The membership campaign of the National Automobile Dealers' Association is going on without interruption, in fact the voluntary applications have been gradually increasing and efforts of local associations, together with those of some of the state chairmen are gradually bringing the ultimate goal in sight.

Dealers generally are supporting the movement vigorously and enthusiastically. As an indication of the growth of the association the following table of new members who have joined during the last 90 days is given. It is expected that this list will double before Jan. 1, by which time the total will closely approach 10,000.

NEW MEMBERS.

Alabama	19	Nebraska	45
Arkansas	29	N. Carolina	5
California	46	New York	223
Colorado	37	New Jersey	43
Connecticut	61	New Hampshire	45
Delaware	1	New Mexico	6
Florida	11	N. Dakota	21
Georgia	22	Ohio	154
Indiana	107	Oklahoma	49
Illinois	292	Oregon	1
Iowa	114	Pennsylvania	302
Kansas	197	Wyoming	3
Kentucky	31	Rhode Island	30
Louisiana	18	S. Carolina	6
Massachusetts	182	S. Dakota	28
Michigan	20	Tennessee	41
Minnesota	249	Texas	39
Mississippi	7	Utah	1
Missouri	143	Vermont	21
Montana	77	Virginia	9
Maine	111	Washington	19
Maryland	4	W. Virginia	4
Dis. of Columbia	4	Wisconsin	171

RED CROSS NEEDS 1050 MORE MEN FOR OVERSEAS DUTY.

Major H. P. Harding, Commander of Camp Scott, Chicago, the official training camp for Red Cross drivers, states that due to increased facilities at the barracks they will enlist 1050 more men for duties overseas in France and Italy.

This section is open to men under 18 years or over 45 years of age, also to men in deferred classifications. It is necessary that the applicant have at least one year's driving experience.

A course of training lasting four weeks is given, consisting of mechanical training and military discipline. The training is intensive. Military discipline is upheld always. Actual work in constructing and reassembling automobiles is given. Demonstrations of all possible accidents and break downs are shown with the quickest method of repairing.

A driving course, which has as rough as the roughest spots in No Man's Land, adjoins the barracks, and the driver is required to cover this course under all conditions, at certain speeds and with certain loads.

Forty dollars a month and maintenance, including equipment, is paid after sailing; while in training, half pay and maintenance.

Recruiting headquarters of the Automotive and Mechanical Sections, 528 People's Gas Building, Chicago, Ill.

MITCHELL & SMITH CO. CARRY BIG LINE OF GASKETS.

The Mitchell & Smith Co., Inc., 1090-92 Commonwealth Ave., Boston, Mass., are carrying a large stock of gaskets for every make of car and can fill all orders without any delay.

Personal News of the Industry in Brief

Frank W. Pilling, well known throughout the middle west, having had long experience as a district manager in that territory, died in Detroit, Oct. 10. He was district manager of the Heath-Duplex department of the McCord Manufacturing Co., Inc. Previous to this connection he served the Hupp Motor Car Corporation, Liberty Motor Co. and others.

Frank W. Pilling, Well Known in Motor Car Trade, Dies in Detroit.

A. H. Doolittle has joined the Publication Division, Service Department, Bureau of Aircraft, Detroit. He was formerly sales and advertising manager of the Zenith Carburetor Co. of Detroit, and was also at one time connected with the Knox and the Continental Motors Co.

S. V. Norton, manager of truck tire sales of the B. F. Goodrich Co., Akron, O., is one of the men to whom Governor Cox of Ohio has assigned the task of working out a plan for the development of motor truck transportation.

S. V. Norton, Developing Plan for Motor Truck Transportation.

J. B. Sweeney has become associated with the advertising department of the Firestone Tire and Rubber Co. He was formerly assistant advertising manager of the Paige-Detroit Motor Car Co.

D. B. Groce has been promoted to the management of the truck tire sales department of the Columbus, O., branch of the Firestone Tire and Rubber Co. He was formerly truck and city salesman for the company. William B. Alexander, who has been manager of the Columbus branch, has been promoted to the management of the branch at Omaha.

Charles N. Buchell, prominent in the automobile business, died recently of pneumonia. He was connected with the Buchell Automobile Co., New Bedford, Mass.

C. C. Winningham, who was formerly advertising manager of the Hudson Motor Car Co. of Detroit, has been made associate chief of the Industrial Plants Division, Information and Education Service of the United States Department of Labor. Previous to that connection Mr. Winningham was chief of the Gasoline Section of the United States Fuel Administration.

C. C. Winningham, Appointed to Service in U. S. Department of Labor.

F. N. Morgan has become associated with the Cleveland Tractor Co. in the capacity of district manager. He has been given charge of the southwestern territory, with offices in Oklahoma City. Mr. Morgan was formerly assistant manager of the St. Louis branch of the Studebaker Corporation.

H. L. Hall has been appointed Chicago branch manager of the Swinehart Tire and Rubber Co. For the past eight years he had charge of the western territory for the Troy Carriage Sunshade Co., Troy, O. Mr. Hall has been connected with the automobile industry since its bicycle infancy.

Charles S. Pike is entering the Motor Transport Corps, candidate for a commission as captain. He was recently placed in charge of merchandising of motor trucks to be built by the Paige-Detroit Motor Car Co.

Charles S. Pike of Paige-Detroit Company, Enters Motor Transport Corps.

E. H. Geyer is now general sales manager of the Hercules Motor and Manufacturing Co., Canton, O.

A. F. Knoblock has been appointed to an important position in the Ordnance Department as assistant to Louis J. Horowitz, recently appointed special assistant to the chief of ordnance in charge of tanks. Mr. Knobloch will act as Mr. Horowitz's special representative in matters having to do with practical manufacturing and technical details in providing the fighting tanks required in Europe. He was formerly vice president and works manager of the Cleveland Tractor Co.

A. F. Knoblock, Appointed to Position in U. S. Ordnance Department.

E. P. Chalfant, General Manager of Automotive Products Corporation.

E. P. Chalfant has resigned as eastern division manager of the Anderson Electric Car Co. and has been appointed general manager of the Automotive Products Corporation, an export house, which was organized last year by the American Steel Export Co. He is one of the best known men in the motor car industry, having been connected with it for over 15 years and was at one time general manager of the Association of Licensed Automobile Manufacturers. Later he was with the Packard and Thomas companies.

Les W. Place, sales manager of the Allen Motor Co., Fostoria, O., has resigned. He has not announced his plans for the future.

A. H. Pearsall has become district manager for the Cleveland Tractor Co., Cleveland O. He was formerly with the Studebaker Corporation, Detroit, for seven years. Offices have been established in the People's Gas building, Chicago, and his territory comprises the greater part of Illinois, Wisconsin, Iowa and Missouri.

Les W. Place, Sales Manager of Allen Motor Co., Resigns.

C. W. Hollaway is now district manager of the Cleveland Tractor Co., Cleveland, O. He will be located in the Healey building, Atlanta, Ga. His territory comprises Georgia, Alabama, Florida, North and South Carolina and Tennessee east of the Tennessee river.

J. Fred Holland has succeeded Ralph H. Ratliff as sales and advertising manager of the Butler Manufacturing Co., Indianapolis, Ind. Mr. Ratliff resigned to take up agriculture.

L. H. Boydston, formerly director of sales for the Sandow Motor Truck Co., Chicago, Ill., has become associated with the Service Motor Truck Co., Wabash, Ind., and will assume the duties of district sales manager in the territory comprising Wisconsin, Minnesota, Iowa, North and South Dakota and Nebraska. Mr. Boydston succeeds Frank Drage, who formerly covered that territory for the Service company.

J. S. Burdick, who for the past year has been body engineer at the plant of the Locomobile Company of America, in charge of model body designing construction, has enlisted in government work for overseas service as automotive engineer in connection with fuselage in aircraft construction.

Miss Nellie D. Prendergast, for a number of years advertising manager of the Pathfinder Co. of Indianapolis, who is nationally known on account of the many publicity campaigns she conducted at the automobile shows in the various cities, has been appointed manager of the motor truck and advertising departments of the Kaufmann-Morris Co., New York City, dealers in Nash passenger cars and trucks and the Titan line of trucks and Premier passenger cars. For the past year Miss Prendergast has been advertising manager of the Bancraft-White Corporation of Syracuse, N. Y.

E. D. Hawley has been promoted to manager of the Studebaker branches in Ohio, Pennsylvania, West Virginia and New York. He was formerly connected with the Columbus, O., branch of the Studebaker Sales Co.

Fred C. Meinhardt has been appointed office manager of the Milwaukee Auto Engine and Supply Co. He was formerly auditor of the United States engineers office at Milwaukee. Through a typographical error in these columns it was originally announced that Mr. Meinhardt had been appointed business manager of the company.

Captain Edward V. Rickenbacher, formerly a leading race car pilot on the American tracks has been awarded two more bronze oak leaves for extraordinary heroism, to be worn on the Distinguished Service Cross awarded him on Oct. 16.

David C. Fenner has been appointed an assistant to C. C. Hanch, chief of the Automotive Products Section of the War Industries Board. He is a member of the Highways Transport Committee of the New York State Council of Defense.

Capt. E. V. Rickenbacher Is Again Decorated for Heroism.

O. E. Harmon has been appointed manager of the service department of the Fuller & Sons Manufacturing Co., Kalamazoo, Mich. This company also announces the appointment of M. E. Fuller as employment supervisor in the employment department which was organized under the direction of Dr. Blackfor, an international employment expert.

Leslie R. Acton, president of the Power Truck and Tractor Co., Detroit, Mich., which was recently organized with capital of $2,500,000, and which has already begun manufacture of four sizes of power truck chassis, is well known in the motor industry, having been associated with several of the best known manufacturers in the country. He was at different times auditor and assistant treasurer of the Studebaker Corporation, production manager of the Maxwell Motor Co. and vice-president of the Redden Motor Truck Co.

Leslie B. Acton, President of the Power Truck and Tractor Co., Detroit.

Practical Devices for Fuel Economy Which Increase Engine Efficiency in Cold Weather

The foremost question of the day from the motoring viewpoint is that of fuel and carburetion, and the problem involved is even more momentous than that of a supply of new cars as the approach of freezing weather brings manifold complications that must be taken into consideration in addition to those experienced in mild and high temperatures due to low grade gasoline.

There is also the fact of a shortage to be considered this year and while the need for fuel conservation may not become imperative, it will be a long while before a plentiful supply is obtainable at the old prices even though the war should suddenly end, as with the slackening of the demand for war purposes the use for commercial and civilian purposes in Europe will take its place and probably exceed the former demands.

Leaving out either the question of supply or grade of gasoline the factor of cold weather must be considered at this season in its relation to proper carburetion, as it has in the past. Even with the best grade of gasoline and the highest grade of engine and equipment, sufficient trouble has been experienced in starting and operating internal combustion engines in winter to create an enormous demand for various devices which in one manner or another either heat or conserve the heat that is employed in increasing the volatility of the gasoline so that it will readily mix into a gas having the proper explosive units.

As every car operator knows or should know, combustion of gasoline or kerosene cannot take place unless it is properly mixed with air. If one were to insert a spark plug below the surface of a body of gasoline and pass a spark across the electrodes, beyond the formation of gas by electrolysis and heat nothing would happen, and there would be no fire, unless a spark was formed at or above the surface where there was sufficient air to support combustion. This lack of knowledge on the part of motorists regarding carburetion principles is also frequently responsible for the frequent attempts made to get an engine to start by dipping one of the spark plugs in gasoline before inserting them in the cylinder. This idea, of course, is founded on the belief that a sure fire must be obtained if the fuel is located at the point of the greatest heat. This method usually meets with failure and one might crank for many minutes without getting an explosion, as the electric current would pass through the liquid fuel, without generating enough heat, either to vaporize or fire the mixture.

Raw gasoline in the cylinders will give no results, and will only explode when vaporized and the lower the temperatures the more difficult it becomes to gasify the fuel. The intensity of the explosion will vary in accordance to the condition of the mixture, a fact which brings us down to carburetion as the base of all engine theory. There are three degrees of fuel vaporization, which are styled in the same terms as applied to water vaporization, namely: Wet or rain, foggy and dry mixtures. Of the three states of gasification the dry mixture is the most desirable. To obtain this condition of course quite high temperatures must be secured to preheat the mixture and for this reason and as previously stated, the various devices on the market to improve carburetion operate on the heat principle, either applying electrically generated heat to the carburetion device, or taking it from the engine exhaust and using it to raise the temperature of the mixture as it passes through the intake manifold.

With the use of these devices the lower grades of fuel are not only utilized, but should give greater power and more mileage, as they contain more heat or power units. Just how these units may be utilized is the question which causes the trouble. The main difficulty arises in vaporizing the fuel rapidly enough for use, while a second problem arises when the fuel is vaporized, for with vaporization comes increase in volume, consequently the amount of fuel which can enter the engine is materially reduced.

One of the best known and a quite popular form of fuel saving device is the auxiliary air attachment, of which there are quite a number on the market. With some of these the manifold is tapped to receive an automatic air valve or one controlled from the dash. This same effect, however, can be obtained if the air intake on the carburetor has a sufficient range.

There are also numerous heating devices designed along various ideas of construction, including exhaust preheaters, electric preheaters and water heated types. In many of the newer manifolds on the market the inlet passage is in contact with the metal of the exhaust passage either for its entire length or partly.

This season will undoubtedly witness the largest demand for devices for improving carburetion and combustion that has ever been experienced, and as there will be keen interest in the various types and makes, practically every one on the market will be shown and described in the coming issues of the Automobile Journal and Accessory and Garage Journal.

Directory of Automobile Accessories, Parts and Supplies With Descriptions, Illustrations and Prices

This is the second part of the directory of accessories, parts, fittings, machinery, tools, equipment and supplies which is being published in the Automobile Journal and Accessory and Garage Journal. Articles that are now in production or which are being carried in stock and that can be secured by jobbers and dealers are described and illustrated, and the prices and delivery conditions are stated. This information, which can be obtained through no other medium, is being compiled from the most recent advices direct from manufacturers.

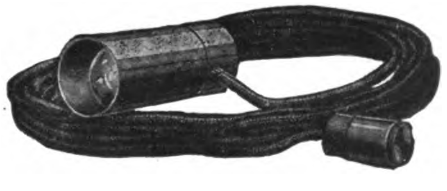
Several thousand articles will be described in this way in the forthcoming issues of the two publications up to the opening of the Spring season. In the descriptions given, where no mention is made of the maker's ability to deliver goods, it is to be assumed that the same situation would exist as under normal conditions and that the article would be procurable, subject to the transportation and manufacturing considerations of the present time.

Owing to present publishing conditions, extra copies cannot be supplied, so subscription orders should be placed at once.

Acme Automobile Jack—I. S. Spencer Sons, Inc., Guilford, Conn............37
A. C. Carbon-Proof Spark Plug—Champion Ignition Co., Flint, Mich.......33
Adamson Model E Vulcanizing Set—Adamson Manufacturing Co., East Palestine, O............................30
Advance White Stripe Transmission Lining—Advance Automobile Accessories Corporation, 56 E. Randolph St., Chicago, Ill.............................37
A. & H. Valve Tool—A. & H. Manufacturing Co., Inc., 505-507 West 45th St., New York, N. Y....................27
Akron Williams Rag Roller—Williams Foundry and Machine Co., Akron, O..34
Aloxite Cloth—Carborundum Co., Niagara Falls, N. Y......................35
American Bureau of Engineering—American Bureau of Engineering, 1018 Wabash Ave., Chicago, Ill..............37
American Folding Camp Stove—American Gas Machine Co., Albert Lea, Minn.35
Ambu Plate Press—American Bureau of Engineering, Chicago, Ill............33
Auto-Scope Windshield Wiper—White Lock Co., 1241 Michigan Ave., Chicago, Ill. 36
Bay State Autokit Wrenches—Bay State Pump Co., Boston, Mass..............25
Beach Automatic Grip Puller—The Greb Co., 202 State St., Boston, Mass.......33
Black & Decker Tank and Pump—Black & Decker, Baltimore, Md.............25
Black & Decker Tire Inflator Outfit—Black & Decker Mfg. Co., 304 Water St., Baltimore, Md....................27
Blaxshine—Twin City Varnish Co., 268 N. Wabash Ave., Chicago, Ill........34
Brake Shoes for Fords—Adamson Mfg. Co., East Palestine, O................25
Bubbling Fountains—Manufacturing Equipment and Engineering Co., Framingham, Mass..........................35
Care of the Cooling System—Northwestern Chemical Co., Marietta, O........34
Carson Kickless Crank—Carson Manufacturing Co., Richmond, Va..........33
Carborundum Valve Grinding Compound—Carborundum Co., Niagara Falls, N. Y............................37
Champion Spark Plug Cleaner—Champion Spark Plug Co., Toledo, O........31

Comer Auto-Stop Signal—Bucyous Eastern Sales Co., 201 Devonshire St., Boston, Mass....36
Continental Motor Stand—Continental Auto Parts Co., Knightstown, Ind....28
Continental Running Board Support—Continental Auto Parts Co., Knightstown, Ind....33
Copley Primer—Bay State Pump Co., 100 Purchase St., Boston, Mass....23
Culver-Stearns Giant Searchlight—Culver-Stearns Mfg. Co., Worcester, Mass.27
Curtis Air Compressor—Curtis Pneumatic Machinery Co., 1621 Keinlen Ave., St. Louis, Mo....26
De Luxe H. 34 U. S. Two-Stage Automatic Air Compressor—United States Air Compressor Co., Cleveland, O....28
Derf Spark Plug—Derf Manufacturing Co., Gerken building, 90 W. Broadway, corner Chambers St., New York City.22
Eagleine Motor Oils and Gear Oil—Eagle Oil and Supply Co. 44-5-6 India St., Boston, Mass....36
Eclipse Valve Grinder—Eclipse Valve Grinder Co., 1230 Lydia Ave., Kansas City, Mo....27
Economy Vapor Plug—The Aristos Co., Warren, O....24
Eureka Grinding Compound—J. H. Faw, Inc., 37 Warren St., New York City...34
Evr-Lastin Gear Compound—Imperial Oil Co., St. Louis, Mo....36
Egry Register System—Egry Register Co., 431 Monument Ave., Dayton, O..23
Ever Last Resole—Ever Last Tread Co., Inc., Indianapolis, Ind....23
Ford Auxiliary Radius Rods—Walker Manufacturing Co., Racine, Wis....29
Gates Vulco-Cord Belt—Colorado Tire and Leather Co., Denver, Col....32
Gordon Sectional Overlap Lazyback Seat Cover—J. P. Gordon Co., Columbus, O.38
Harlan Ignition and Spark Plug Tester—Harlan Ignition Instrument Manufacturing Co., Watsonville, Cal....32
Harvey Springs—Harvey Spring and Forging Co., Racine, Wis....35
Hercules Tops for Fords—Hercules Buggy Co., Evansville, Ind....35
Herz Spark Plug—Pro-Mo-Tor Fabricating Corporation, 245 West 55th St., New York City....26
Holdford Brake—G. H. Dyer Co., Cambridge, Mass....25
Howe Kork Tred Transmission for Ford—Howe Manufacturing Co., Chicago, Ill....30
Hudson's G. L. W. Spring Oiler—Hudson Sales Co., factory branch, G. L. W. Spring Oiler Co., 7 East Jackson Blvd., Chicago, Ill....24
Howe Searchlight Display Stand—Howe Manufacturing Co., Chicago, Ill....38
Imperial Auto Folding Chair—Imperial Bit and Snap Co., Racine Wis....29
Imperial Primer—Imperial Brass Manufacturing Co., 1200 West Harrison St., Chicago, Ill....23
Kennedy Auto Covers—Kennedy Car Liner and Bag Co., Shelbyville, Ind..32
Kimball Ball Bearings Heavy Type Jack—Edward A. Cassidy Co., Madison Ave., at 40th St., New York City....38
Krom-Nik Anderson Special Gear—F. H. & S. Co., Chicago, Ill....35
"The Liberty Bell"—The Liberty Bell Co., Cleveland, O....30
Lawco Rim Tool—F. H. Lawson Co., Cincinnati, O....26
Lepper Manifold Heater—Lepper Manufacturing Co., 101 North Federal Ave., Mason City, Ia....22
Line Carburetor Heater—Mechanical Utilities Corporation, North La Salle St., Chicago, Ill....22
Liquid Veneer—Buffalo Specialty Co., Buffalo, N. Y....32
Long Horn—Edward A. Cassidy Co., Inc., 280 Madison Ave., New York City....36
Main Battery Charging Outfit—Main Electric Manufacturing Co., Pittsburgh, Pa....24
Manley 22-Ton Universal Auto Press—United Engine and Manufacturing Co., Hanover, Pa....27
Manley General Utility Garage Crane—United Engine and Manufacturing Co., Hanover, Pa....34
Martin Inner Tube Cases—Martin Manufacturing Co., Lancaster, O....34
Marvel Spark Plug Intensifier—William Simpson, 228 S. Wells St., Chicago, Ill.28
Master Calorite Spark Plugs—Hartford Machine Screw Co., Hartford, Conn....24
May's Cotter Pin Puller—Brewer Tichener Corporation, Cortland, N. Y....25
McKee Lens—McKee Glass Co., Jeannette, Pa....20
Meckel Shackle Bolt Lubricator—Meckel Lubricator Co., Lakewood, O....29
Mistokloths—Crew Levick Co., 111 N. Broad St., Philadelphia, Pa....30
Moore Transmission—Tractor Train Co., 1346 Wall St., Los Angeles, Cal....37
More-Lite Lens—L. E. Smith Glass Co., Mt. Pleasant, Pa....28
Mosco Timer for the Ford Car—Motor Specialties Co., Waltham, Mass....25
Mosco Valve Grinder—Motor Specialties Co., Waltham, Mass....34
Motor Products Windshields—Motor Products Corporation, Mack Ave., Detroit, Mich....30
"New Britain" All-Steel Bench Drawer—New Britain Machine Co., New Britain, Conn....36
New Era "Better" Strapless Tire Holder—New Era Spring and Specialty Co., Grand Rapids, Mich....35
Never-Leak Gaskets—Fitzgerald Mfg. Co., Torrington, Conn....38
Outlook Cleaner—Outlook Co., 5525 Euclid Ave., Cleveland, O....28
Pierce Governor—Pierce Governor Co., Anderson, Ind....26
Premier "Its-It" Vulcaniser—Premier Electric Co., 4632-4042 Ravenswood Ave., Chicago, Ill....34
Premier "Stick-Lite"—Premier Electric Co., 4032-4042 Ravenswood Ave., Chicago, Ill....21
Pressure Proof Piston Ring—Pressure Proof Piston Ring Co., 169 Massachusetts Ave., Boston, Mass....28
Presto Electric Heater—Metal Specialties Manufacturing Co., 338-352 N. Kedzie Ave., Chicago, Ill....23
Red Spot Searchlight—F. W. Wakefield Brass Co., Vermillion, O....28
Rex All Enclosed Oil Cups—Frank X. Devlin, 100 Warren Ave., East Detroit, Mich....38
"Ritemix" Gasoline Economizer and Compensator—Perfection Auto Parts Co., 2130 Superior Ave., N. E., Cleveland, O....23
Roedding Signal Tail Light—K. G. Barkoot, Detroit, Mich....37
Roll-Rite Bearings—Roll-Rite Manufacturing Co. Charleston, S. C....38
Rusco Brake Lining—Russell Manufacturing Co., Middletown, Conn....35
Schmidt Cylinder Grinding Machine—B. L. Schmidt Co., Davenport, Ia....25
Scenetific Garage Oil Heater—Scientific Heater Co., Cleveland, O....22
Shurnuff Grease Retainer—Shurnuff Manufacturing Co., St. Louis, Mo....32
Shurnuff Windshield Ventilator—Shurnuff Manufacturing Co., St. Louis, Mo.28
Simplex Grease Gun—Hinrichs Manufacturing Co., Chicago, Ill....38
Sioux Valve Grinder—Albertson & Co., Sioux City, Ia....26
Sprague Worm Steering Gear—Sprague Manufacturing Co., Omaha, Neb....24
S. R. B. Stanford Bearings—Standard Roller Bearing Co., Philadelphia, Pa..24
Stewart Handy Worker—Chicago Flexible Shaft Co., 12th St. and Central Ave., Chicago, Ill....23
Stewart Foot Accelerator—F. W. Stewart, 1402 Michigan Ave., Chicago, Ill.38
Stickit—Bay State Pump Co., Boston, Mass....31
Storm Light Weight Pistons—Storm Manufacturing Co., Thompson, Ia....35
Storm Connecting Rod Bearing Reamer.. Jig and Straightening Gauge—Storm Manufacturing Co., Thompson, Ia....31
Sunderman Vacuum Carburetor—Sunderman Corporation, 9-11 Chambers St., Newburgh, N. Y....22
Superior Parts—Specialty Manufacturing Co., 636 Massachusetts Ave., Arlington, Mass....32
Superior Drop Forged Wrenches—J. H. Williams & Co., Brooklyn, N. Y....29
Su-Dig Series Plug—Superior Motor Power Co., 135 Fifth Ave., New York City....23
Taples Foot Warmer—Taples Corporation, 47 West 34th St., New York City 36
Tip-Top Ti-Re-Par Vulcanizing Outfits—Akron Rubber Mold and Machine Co., 941-5 Sweitzer Ave., Akron, O....27
Tri-Co Rain Rubber—Tri Continental Corporation, Buffalo, N. Y....31
"Triple" Gasoline Hose—Metal Hose and Tubing Co., Brooklyn N. Y....37
"Universal" Adjustable Hose Clamps—.. Universal Industrial Corporation, Hackensack, N. J....25
Universal Battery Service—Universal Battery Co., 3420 S. La Salle St., Chicago, Ill....22
Universal Screw Cabinet—Hobart Brothers Co., Troy, O....26
Universal Vise Attachments—The Universal Equalizer Co., Cincinnati, O...24
Utility Varnish Renovator—Poughkeepsie Utilities Corporation, 36 Winnikee Ave., Poughkeepsie, N. Y....32
Victor Heater for Ford Cars—Foreign and Domestic Auto Supply Co., 1765 Broadway, New York City....22
Wagoner Engine Cleaner—Wagoner Specialty Co., 1902 Broadway, New York City....28
Water Spray Auto Brush—Scully-Jones Co., Chicago, Ill....31
Water Gas Carburetor—Water Gas Carburetor Co., 347 Fifth Ave., New York City, and 1504 Grand Ave., Kansas City, Mo....22
Weston Garage Testing Instrument—Weston Electrical Instrument Co., 103 Weston Ave., Newark, N. J....31
Williams Solid Reducing Shell—Williams Foundry and Machine Co., Akron, O..38
Woodworth Carbon-Clear—Woodworth Manufacturing Corporation, Niagara Falls, N. Y....34
Woodworth Easyon Chains—Woodworth Manufacturing Corporation, Niagara Falls, N. Y....81
Woodworth Easyon Truck Chains—Woodworth Manufacturing Corporation, Niagara Falls, N. Y....32
Woodworth Fan Belts for Fords—Woodworth Manufacturing Corporation, Niagara Falls, N. Y....29
Woodworth Hook-On, Strap and Lace Tire Boots—Woodworth Manufacturing Corporation, Niagara Falls, N. Y.30
Woodworth Kant-Skid Cross Chains—Woodworth Manufacturing Corporation, Niagara Falls, N. Y....35
Woodworth Lock Chains—Woodworth Manufacturing Corporation, Niagara Falls, N. Y....37
Woodworth Lubricating Spring Covers—Woodworth Manufacturing Corporation, Niagara Falls, N. Y....29
Woodworth Steel Treads—Woodworth Manufacturing Corporation, Niagara Falls, N. Y....33
Yankee Vise, No. 1993—North Brothers Manufacturing Co., Philadelphia, Pa..33

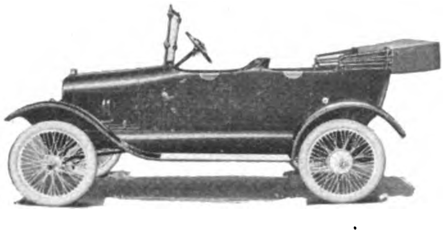
The Premier "Stickalite" as its name would imply, is a portable trouble lamp that will cling tight at any angle on iron and steel without hooks or other means of holding it in position, affording a bright light in the most convenient position at any part of the car or engine and serves a dual purpose, as the magnetised end through which this great utility is obtained can be used for fishing nuts, bolts, tools and other metal parts from the engine pan.



The "Stickalite" operates from 6 to 12 volt storage batteries, or from dry cells of equal voltage. The voltage used should be specified when ordering, as the six-volt type is furnished as standard. Immediate deliveries.

Manufactured by the Premier Electric Co., 4032-4042 Ravenswood Ave., Chicago, Ill. Price, $1. "Stickalite" tungsten bulbs, 35 cents each.

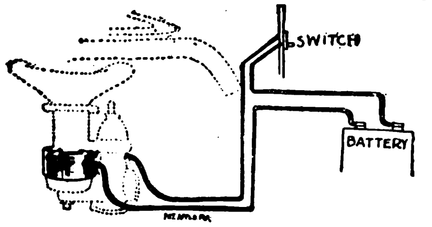
"Amesbilt" Five-Passenger Ford Bodies have every detail and quality known to the master builder. The makers claim that the same workmanship, quality and class of material that go into the high-priced motor car built "Amesbilt" bodies are used in these Ford bodies. The seats are tilted to invite relaxation. The cushions are fitted with deep coil springs of the proper resistance to absorb road shocks and the body sets low and has pure stream lines. The inside measurement from dash to back of front seat is 42 inches. Depth of cushions 17 inches. Front seat 36 inches wide. Back of front seat to back of rear seat 39 inches. Depth of rear cushion 20 inches. Overall length 122½ inches. These bodies are made in a variety of styles at attractive prices.



"Amesbilt" Five-Passenger Ford Body.

Manufactured by the F. A. Ames Co., Inc., Owensboro, Ky. Write for prices and literature.

The Line Carburetor Heater applies the heat direct to the float chamber, raising the temperature of the gasoline so that when it passes into the intake manifold it vaporizes readily even though the engine is cold. The device is so designed that it can be wrapped about the carburetor float chamber and is connected by two wires which run through a switch to a six-volt battery. When the switch is closed the heat generated by the resistance coil in the device heats the gasoline in the carburetor chamber.



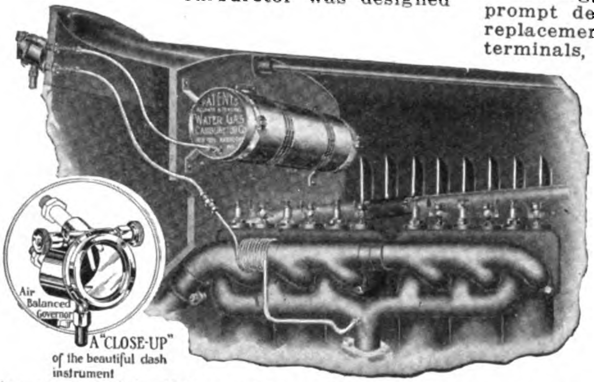
Manufactured by the Mechanical Utilities Corporation, North La Salle St., Chicago, Ill. Price, $4.

The Victor Heater for Ford Cars is one of the best known on the market, being handled by some 260 jobbers and being used on 210,000 cars according to the makers. It utilizes the intense heat from the exhaust gases to heat fresh air that is radiated inside the car and becomes effective a few seconds after the engine has been started. Following in design the same time-tested principle as in the construction of the hot air furnace, it circulates fresh air over a heated drum. This drum runs lengthwise, at right angles to the exhaust pipe. The exhaust coming direct from the motor is turned into the drum. Fresh air circulates around the outside of the drum and is heated by the hot gases inside and rises into the car. A cone shaped spring in the drum absorbs the force of the exhaust, acts as a silencer and at the same time radiates heat outward toward the heating surface. It has no complicated parts, nothing to get out of order, costs nothing to operate and is an ornamental fixture rather than an eye sore when installed. Anyone can attach the heater in 20 minutes' time and new floor boards are furnished to eliminate the necessity of sawing or patching. Prompt deliveries.

TRADE MARK
VICTOR
PAT.

Distributed by the Foreign and Domestic Auto Supply Co., 1765 Broadway, New York City. Price, $5.

The Water Gas Carburetor is an outfit for introducing moisture into the engine cylinders with the combustion charge as a means of producing the same ideal mixture as obtains in damp or foggy weather, at which times, as has been the experience of every motorist, the engine shows exceptional efficiency and power. This fact has been known for some time, as it was known that additional amounts of oxygen with the gasoline mixture not only made a more powerful charge, but resulted in almost complete combustion, practically eliminates carbon formations and all the troubles of which they were the cause. With these facts in mind the only problem to solve was that of perfecting a device with which the amount of water introduced into the firing charge could be carefully regulated and the Water Gas Carburetor was designed to accomplish this purpose. This outfit consists of a copper tank with brackets for installation, 10 feet of copper tubing with fittings and the carburetor. Suction from the intake manifold draws filtered water from the tank into the Water Gas Carburetor, which is a double jet sight feed instrument. Controlled automatically to correct speed by an air balanced governor, the water is fed, drop by drop, through the copper tube into a coil wrapped around the hot exhaust pipe, where it becomes converted into steam and is then sucked into the cylinders through the manifold with the firing charge, assisting complete vaporization by raising the temperature, increasing the combustibility of the mixture and thereby greatly increasing the amount of power developed from a given amount of gasoline.

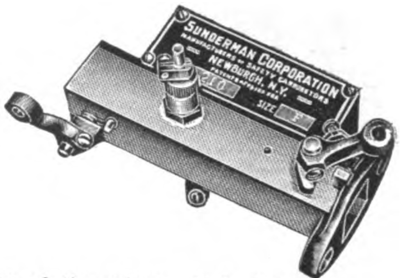


A "CLOSE-UP" of the beautiful dash instrument

Manufactured by the Water Gas Carburetor Co., 347 Fifth Ave., New York City, and 1504 Grand Ave., Kansas City, Mo. Price of outfit complete, $18.

The Sunderman Vacuum Carburetor is built on the high vacuum principle which, as is known, greatly increases the evaporation and gasification of liquids. The nozzles or jets in the Sunderman are placed at 90 degrees angle to the air intake. They are tapered to 45 degrees and as the air passes over the nozzles with a 45 degree taper head, it has a tendency to create a vacuum over the opening of the nozzles. As the air strikes the tapered circumference of the nozzle heads, this creates a fan shape flow, instantly breaking the fuel into mist, so that it is readily converted into gas, aided by the high vacuum in the body of the carburetor.

The makers claim that combustion in the cylinders is so rapid that only the surface of the minute fuel globules burn to furnish power and that the rest is wasted in the exhaust. Also, that in view of this fact the surface of a given volume of small globules, as furnished by the Sunderman, is greater than the surface of the same volume of liquid globules due to low vacuum, therefore the power developed from small globules is greater than from large ones, giving increased power, mileage and general efficiency.



Manufactured by the Sunderman Corporation, 9-11 Chambers St., Newburgh, N. Y. Write for prices and literature.

Universal Battery Service is a perfect, complete service for repairs on practically any battery. This service solves one of the biggest problems, as it guarantees prompt delivery on all parts needed for replacement and repairs, such as plates, terminals, connectors, separators, etc.

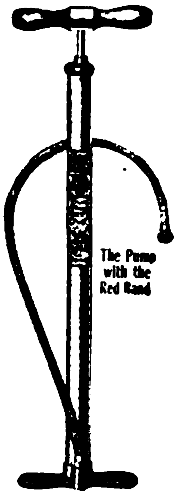
The Universal Battery Co., 3420 S. La Salle St., Chicago, Ill. Write for literature.

The Scientific Garage Oil Heater burns either fuel oil or kerosene and embodies a new principle of oil burning. The burner itself is wickless and sootless, and no matter how strong the flow of fuel it will give perfect combustion. It is so constructed that all heat escapes from the top and none is radiated from the sides, thus making it practical for garages where there is little space between walls and car. It is built on the principle of the miner's safety lamp by which all air for combustion is taken through a fine gauze and through which flame cannot pass. Gasoline can be poured around the heater without danger of fire. The manufacturers claim a minimum use of fuel to heat the ordinary sized garage.

SCIENTIFIC
LIQUID FUEL
GARAGE HEATER
THE SCIENTIFIC HEATER CO.

Manufactured by the Scientific Heater Co., Cleveland, O.

The Sunderland Pump is long, smooth working and slender. The single cylinder model, see illustration, has a 24-inch stroke, enabling a frail woman to put 90 pounds pressure into a tire. It is guaranteed for five years. Fair deliveries.


The Pump with the Red Band

Manufactured by the Sunderland Manufacturing Co., 600 W. 22nd St., Chicago, Ill. Five models—No. 10 at $2.75 is a new pump with floating piston. No. 100 at $1.40 is a single cylinder pump. No. 2 for fast action a two-cylinder pump with 17-inch stroke is $2.35. No. 3, three-cylinder, has 18-inch stroke, $4.50.

The Ever Last Resole is in fact a complete new tire without beads, and is applied over the old casing. It extends clear down over the beads and when applied to the rim it cannot be distinguished from a new tire. It is not a "sewed on" or "double tread," but is built right on over the old casing, and becomes an integral part of it. It can be successfully attached by any repair man or vulcanizer. It is made exactly like a new tire of three plys of close woven 21½ ounce long staple cotton fabric. Each ply is treated with a heavy coat of pure rubber and the tread stock is built over this fabric body. Prompt deliveries.

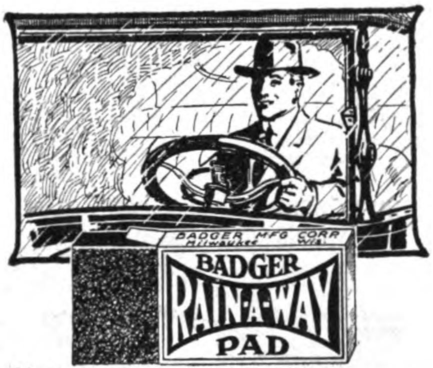
Manufactured by the Ever Last Tread Co., Inc., Indianapolis, Ind.

Crew Levick Motor Oils and Greases are manufactured from crude products obtained from the Pennsylvania fields, which yield the richest grade of crude oil, and are manufactured and backed by one of the oldest and largest producers and refiners in America. They have a name in the trade of being of the very highest quality, a reputation which has been sustained by the makers for over half a century. The purchaser of these products knows what he is getting, as they come direct to the consumer in the manufacturer's regular sealed containers, which are attractive and easily identified. The oil comes in cans containing one or five gallons, while the grease is packed in containers holding 5, 10 and 25 pounds respectively.

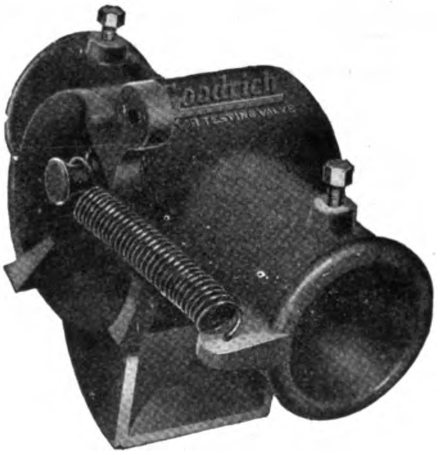
CREW LEVICK
PERFECTION
CUP GREASE
CREW LEVICK CO.
CREW LEVICK
PERFECTION
MOTOR OIL
"Lubricates Longer"
A
CREW LEVICK CO.

Manufactured by the Crew Levick Co., 111 N. Broad St., Philadelphia, Pa. Write for prices and literature.

The Rain-A-Way Pad is a small felt pad treated with a special solution for rubbing over the windshield. It prevents rain from blurring the vision and keeps mist from collecting. It leaves an invisible film on the glass, which sheds the water. If the pad is applied at the approach of rain it is claimed that the rain drops positively will not collect. Mist or fog are also kept from gathering even on the coldest days. The pad is not greasy and the preparation used is non-evaporating. It slips in one of the side door pockets and is always ready for instant use.



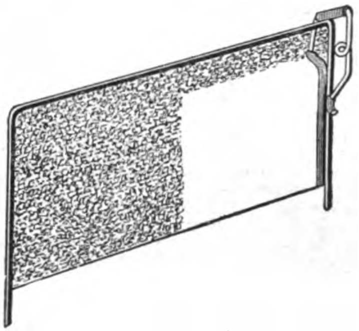
Manufactured by the Badger Manufacturing Corporation, Milwaukee, Wis. Write for prices and literature.



The Goodrich Motor Testing Valve replaces the old style cutout and produces a loud, clear, sharp note. By opening the valve the gases are freely emitted, instead of being forced through the muffler. The bell mouthed opening of the valve allows for ample expansion of the gases, relieves the engine of all back pressure and greatly intensifies the sound of the explosion. Unlike other devices it has no adjustments and is easily cleaned by removing one cotter pin. It is finished in a specially prepared paint, which prevents corrosion and rust. The valve is sold complete with pedal and pulley.

Manufactured by the Goodrich-Lenhart Manufacturing Co., Widener Bldg., Philadelphia, Pa. Ford and all 1½ inch sizes, $3; 1⅝ to 2⅜ inch, $3.75; 2½ to 2⅞ inch, $4.75; 3 inch and over, $7.50. Made in ⅛ inch sizes also.

The Woodworth Windshield Cleaner is a wire cleaner adapted to be used on the windshield of any open car. It is made of No. 4 spring steel wire, having a fine japanned finish and having a corrugated rubber tubing where it comes in contact with the glass and windshield frame. This cleaner may be snapped on the windshield in a moment and is a valuable accessory to any motorist who drives in stormy weather. Prompt deliveries.



Manufactured by the Woodworth Manufacturing Corporation of Niagara Falls, N. Y. Price, 25 cents each. Liberal discount to jobbers and dealers.

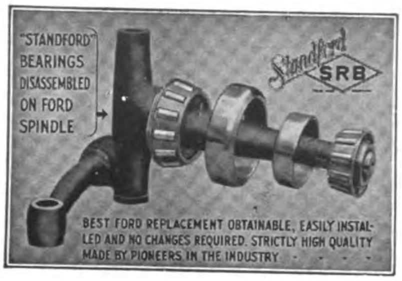
The Howard Dustless Household Duster, unlike the old fashioned feather and wool duster, picks up the dust instead of scattering it and on smooth surfaces has a polishing effect. These results save time and make it unnecessary to dust as frequently. It is easily handled and can be used with equal efficiency on either the body or interior of the car without danger of injuring the most highly polished finishes.

The Howard Dustless-Duster, another product of the same company, is a chemically treated black cloth duster that picks up and retains dust and small particles from all polished surfaces, tapestry or upholstering, making it ideal for use about the car. It brightens and restores the original finish on polished surfaces. The dust that it collects cannot be shaken out, but can be removed by washing the duster in hot water and soap, which treatment does not in any way impair the dust absorbing qualities of the cloth. It is economical as well as efficient, as one duster will outwear from eight to 10 pieces of cheese cloth.

HOWARD
HOWARD
THE ORIGINAL AND THE ONLY
DUSTLESS-DUSTER
"NO OIL TO SOIL"

Manufactured by the Howard Dustless-Duster Co., Boston, Mass. Prices: Howard Household Duster No. 14, utility size, 75 cents each; No. 15, $1; large size, $1.50. Howard Dustless-Duster No. 1, standard, 30 cents each; No. 2, office, 20 cents each; No. 3, auto, 50 cents each.

S R B Standford Bearings are a strictly high grade bearing in design, material and workmanship. It is produced from the highest grade of chrome alloy steel, is made with the same care as the regular S R B taper roller bearings. It is a bearing that absolutely prevents the rollers from going out of line. Race and cone are ground and the rollers cut to a perfectly true taper, making the bearing run freely. It is easily installed and will withstand heavy strains. Fair delivery.

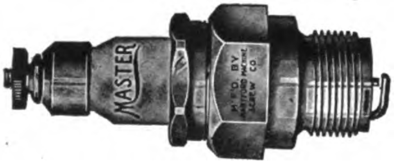

"STANDFORD" BEARINGS DISASSEMBLED ON FORD SPINDLE
Standford
SRB
BEST FORD REPLACEMENT OBTAINABLE. EASILY INSTALLED AND NO CHANGES REQUIRED. STRICTLY HIGH QUALITY MADE BY PIONEERS IN THE INDUSTRY

Manufactured by the Standard Roller Bearing Co., Philadelphia, Pa. Price, $10 per set.

The Economy Vapor Plug is an auxiliary air valve and is attached to the intake manifold. It is adjustable in such a manner as to obtain maximum results on the engine. Once this plug is installed it works automatically at all times without further attention. It is attached by drilling a 11/32 inch hole in the intake manifold just below the spread. Thread with ⅛ inch pipe tap and the plug is easily adjusted to any car's needs. Prompt delivery.

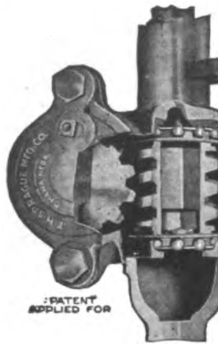
Manufactured by the Aristos Co., Warren, O. Price, $3.50.

Master Calorite Spark Plugs involve the discovery of the new insulating material known as Calorite, and its adoption in the Master plug, the makers claim, has revolutionized the spark plug industry. This substances subjected to severe electrical tests in competition with porcelain, as an insulating material, withstood a 10 per cent. higher voltage than the finest porcelain obtainable. Every Master Plug is wrapped in felt and packed in a round box that may be carried in the tool box, without fear of breakage. Prompt deliveries.



Manufactured by the Hartford Machine Screw Co., Hartford, Conn. Price, $1 and $1.25.

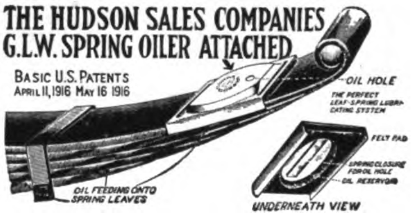
The Sprague Worm Steering Gear for Ford cars appeals to Ford users because of the safety it adds to the handling of this machine. It replaces the ordinary Ford steering equipment and with this steering gear the driver can safely steer out of ruts, hold the Ford much steadier in mud or sand and he need not worry lest a bump or other bad place in the road will cramp a wheel and upset the car. It holds the Ford to the road just as the worm steering gears hold the larger cars. It also prevents locking over center. Prompt deliveries and liberal proposition to dealers.



E. H. SPRAGUE
Ball Bearing Floating Post
Worm Steering Gear

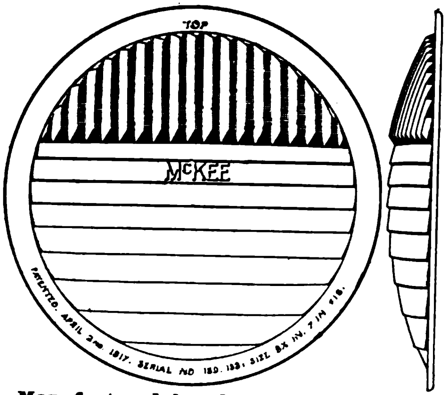
Manufactured by the Sprague Manufacturing Co., Omaha, Neb. Price, $25.

Hudson's G. L. W. Spring Oiler consists of a felt pad with an oil reservoir, contained in a rust proof polished blue metal case. This case snaps over the main leaf of the spring and is so constructed that different degrees of pressure is brought to bear on the felt pad, making the ends perfectly tight and oil proof, thus keeping the top surface of the main spring perfectly clean. At the sides the pressure on the felt is such that it permits a very slow seepage of oil, which fills the grooves along the entire side and is carried between the leaves by capillary action. The manufacturers of this accessory allow a 30 days trial, with money refunded if not satisfactory. Prompt deliveries.


THE HUDSON SALES COMPANIES G.L.W. SPRING OILER ATTACHED
BASIC U.S. PATENTS APRIL 11, 1916 MAY 16 1916
OIL HOLE
THE PERFECT LEAF-SPRING LUBRICATING SYSTEM
FELT PAD
SPRING CLOSURE FOR OIL HOLE
OIL RESERVOIR
OIL FEEDING ONTO SPRING LEAVES
UNDERNEATH VIEW

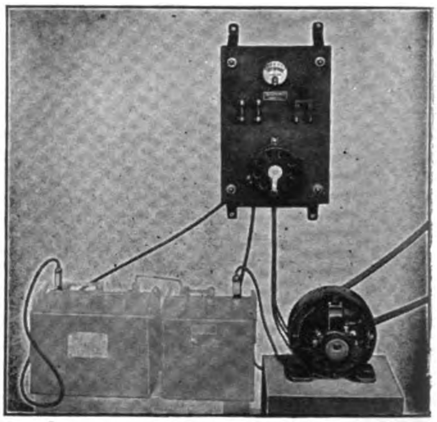
Marketed by the Hudson Sales Co. Factory branch G. L. W. Spring Oiler Co., 7 East Jackson Blvd., Chicago, Ill. Price, 30 cents.

The McKee Lens is constructed on the principal of horizontal and vertical prisms, giving a direct beam of light on the road ahead, limited to 42 inches in height, and with sufficient light to the sides to illuminate the curb and passing cars. An exclusive feature of the design is that it is concave-convex. By an arrangement of vertical prisms in a sector across the top the light which is wasted in a plain glass plate, by being thrown skyward is turned back onto the reflector and thence through the horizontal prisms.

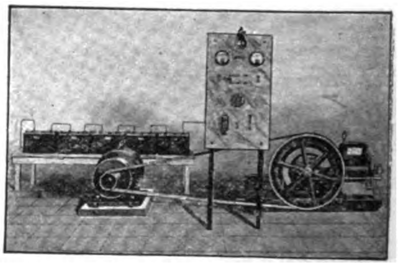

TOP
McKEE
PATENTED. APRIL 3RD 1917. SERIAL NO 150.133. SIZE 8X IN. 7 IN 816.

Manufactured by the McKee Glass Co., Jeanette, Pa. Prices, 5 inches to 8½ inches inclusive, per pair, $2.50; 8¾ inches to 9½ inches inclusive, per pair, $8; 9¾ inches to 10½ inches inclusive, per pair, $3.50; 10¾ inches to 11½ inches inclusive, per pair, $4.

The Main Battery Charging Outfit generates its own current and operates from a line shaft or an engine by belt drive. It charges from one to five lighting batteries at a time from any voltage from six volts up to 30 volts. The dynamo is high grade, shunt wound and of 250 watts capacity with oil ring type bearings and baked black enamel finish. The outfit consists of a slate switchboard with D'Arsonval type ammeter, rheostat, double pole, single throw knife switch, cartridge fuses, irons for mounting and two large flexible leads with large clips. This company builds a small battery charging set, which is usually driven from a gas engine previously installed in the garage or a line shaft or motor by belt, and it will care for from one to five batteries at a time. It retails at $85.

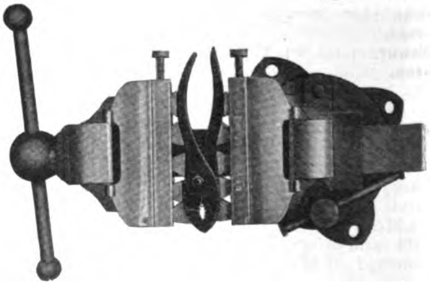


A larger set, which retails at $155, charges from one to 30 batteries at a time. Still larger sets are built in various sizes at various prices from $300 to $900 and will operate upon gasoline, kerosene or natural gas. Fair deliveries.



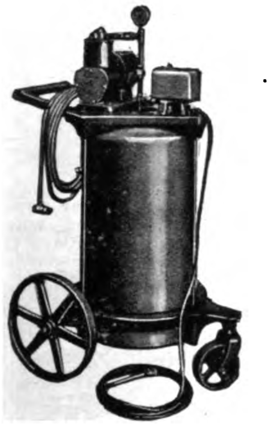
Manufactured by the Main Electric Manufacturing Co., Pittsburgh, Pa.

The Universal Vise Attachment is based upon an entirely new mechanical principle. It instantly converts an ordinary square-jawed vise into a tool of a thousand purposes through the independent action of each "tooth" or "gripper" of its jaw in clasping the form or shape upon which work is to be done. This vise is very efficient for holding irregular shapes. It is made of cold rolled steel, tempered and electrically welded and will reduce the working time by half where irregular shapes are involved. Immediate deliveries in reasonable quantities.



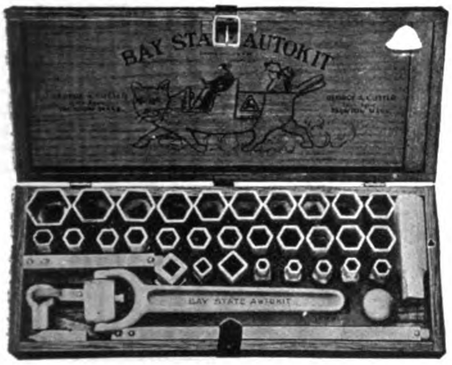
Manufactured by the Universal Equaliser Co., Cincinnati, O. Price four-inch set, $8; five-inch set, $9.

The Black & Decker Tank and Pump is a portable air tank and pump. The outfit consists of an air tank, fitted with a No. 2 lectroflater air pump, mounted on a cradle base that is supported by two large wheels and a swivel castor. A pushing handle is attached to the platform and the outfit is easy to handle and steer. The wheels are fitted with rubber tires for use over hard wood floors or tile. When the tank is empty it is easily pushed to the nearest electrical connection and it refills itself, an automatic switch cutting out the current when the proper pressure is obtained. Prompt deliveries.



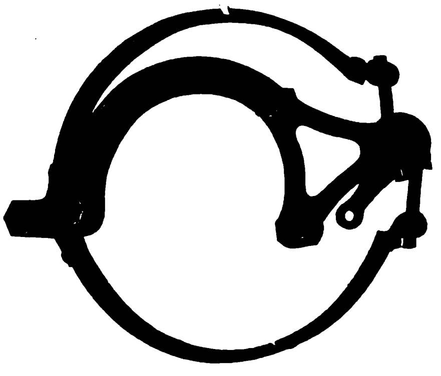
Manufactured by Black & Decker, Baltimore, Md. Price, $225.

Bay State Autokit Wrenches will remove any nut, bolt or cap screw, reaching it wherever it is located, at any angle. The outfit includes an adjustable ratchet handle and shank with a series of sockets, constituting a complete combination with which every kind of work on a car can be accomplished. These tools are of proven design and made of the highest quality material, being guaranteed 100 per cent. efficient, and as the makers claim will give extreme satisfaction in the hardest service. Prompt deliveries.



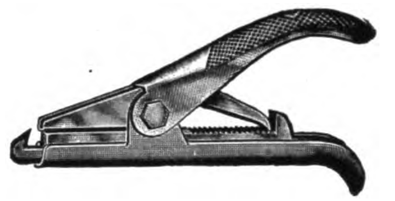
Manufactured by Bay State Pump Co., Boston, Mass. Price, $12.

The Holdford Brake, as the name indicates, is designed primarily for Ford cars and may be used in addition to those on the car, or to take the place of either the service or emergency brake This brake is made from the best of materials, the points where the greatest strain comes are drop forgings, and the lining is J. M. Non-Burn. It is so designed as to be efficient under all conditions, bringing full contact with the external surface of the brake drum, after the first adjustment, until the lining is completely worn out. It may be connected to the foot pedal by means of an equalizing bar, thus relieving the transmission of strain and furnishing a positive brake at all times. In using it on the hand lever the internal brake may be left inside the brake drum or thrown away, according to the car owner's pleasure. In applying the brake no changes in the car are necessary. Fair deliveries.



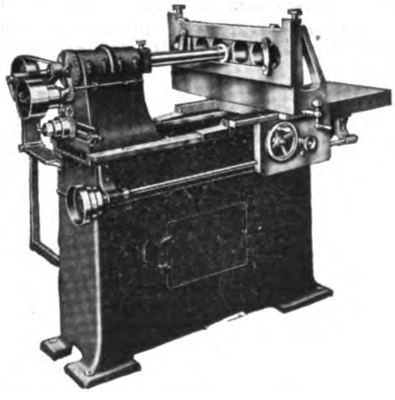
Manufactured by the G. H. Dyer Co., Cambridge, Mass. Price per set when applied to hand lever, $10; for application to foot pedal, $15.

The May's Cotter Pin Puller reaches after the cotter pin, straightens it if bent and once taking hold, withdraws it in safety and holds it until released. In a garage or repair shop where much of this work has to be done, this tool will save much time and trouble. The puller is well machined, mechanically correct and is finished with a heavy nickel plate to prevent rusting. Prompt deliveries to jobbers only.



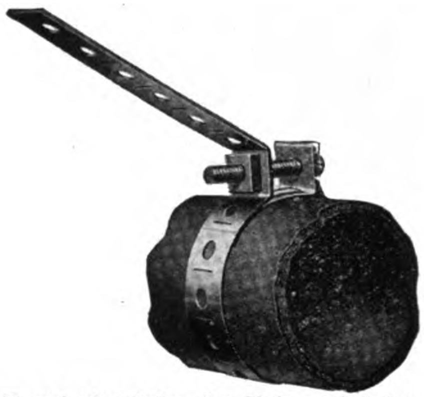
Manufactured by the Brewer Titchener Corporation, Cortland, N. Y. Price, $1.25 each.

The Schmidt Cylinder Grinding Machine is designed for grinding gasoline engine cylinders from the smallest motorcycle type to a six-cylinder block 31½ inches long. The base is of the cabinet type and designed to eliminate all possible vibration. The boring spindle, which is designed for strength and rigidity, is six inches in diameter by 12 inches long and carried upon heavy bearings. The face plate upon which the cylinder block is mounted while being ground is large and heavy, and has both a cross and lengthwise feed, the latter being automatic. It is also fitted with two knurled nuts by which the plate may be raised and lowered, thus facilitating the centering of the cylinder. The length of the bed is 55 inches and the width 15½ inches. The height from the bed to the center of the spindle is 12 inches. Prompt deliveries.



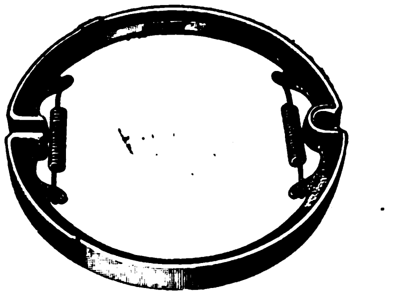
Manufactured by the B. L. Schmidt Co., Davenport, Ia. Price, $1200.

"Universal" Adjustable Hose Clamps are made from cold rolled ribbon steel with screw and nut ready to attach, and it is pliable enough to easily wrap around and conform itself to the shape of a hose or pipe. The clamp ribbon has holes one-half inch apart along its middle portion and in these holes lies the secret of its adjustment. Between these holes are perforations, which make this clamp so successful. The perforations permit the bending of the ribbon with a slight pressure of the hand or pliers, forming a seat for the bottom of the nut. After the clamp is applied and the screw fully tightened the excessive stock may easily be removed by breaking it off at the score next above the nut. Prompt delivery.



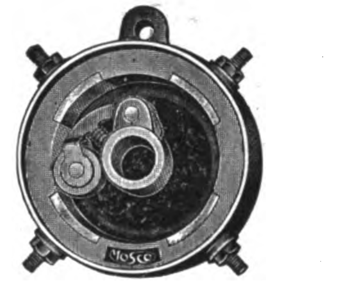
Manufactured by the Universal Industrial Corporation, Hackensack, N. J. Made in two sizes, "Senior" and "Junior." Write for prices and literature.

Brake Shoes for Fords are made in two types, one type being unlined and the other lined with asbestos, having wire insertions and riveted to shoe. The face of these shoes which are in contact with the cam are specially hardened, preventing them from wearing down out of true, and adding materially to the shoe's life. Sold in original cases only, 50 pairs to a case. Weight, 165 pounds. Prompt delivery.

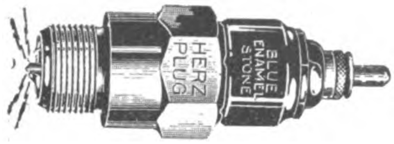


Manufactured by Adamson Manufacturing Co., East Palestine, O. Prices, unlined, 35 cents pair net; lined, 70 cents a pair.

The Mosco Timer for the Ford Car requires but a minimum amount of attention. The shell is made of heavy pressed steel with aluminum finish. The insulating ring is of gray bone fiber. The terminals are insulated all the way through. The contact arm is of pressed steel and with the brush assembly may be purchased separately. Prompt delivery.



Manufactured by Motor Specialties Co., Waltham, Mass. Price, $1.50.



The Herz Spark Plug has a mineralized mica core, which the makers claim is absolutely oil proof. This core is a built up system of mica washers around a tightly wound tube of ruby mica, highly compressed into practically one solid mica unit, which is impervious to oil, heat and moisture. Prompt delivery.

Pro-Mo-Tor Fabricating Corp., 245 West 55th St., New York, N. Y. Price, $1.50 each.

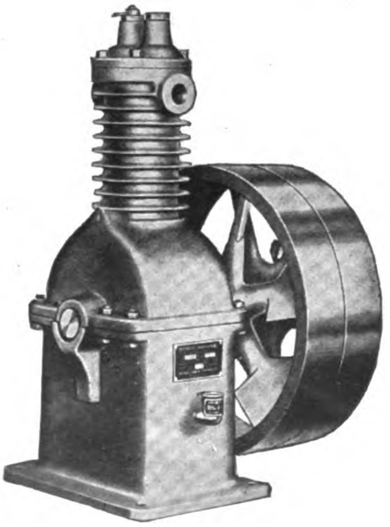
The Curtis Air Compressor has gained a prominent place in the trade, due to its patented system of lubrication, by means of which air free from oil is furnished. The difference between the ordinary splash system in use in some other machines and the "Curtis" controlled splash system may be compared to beating water from a pan with a flat stick, and then trying to empty the same pan of water with the edge of a knife blade. The first system drenches every part of the exterior of the compressor with oil and saturates the air on its way to the tire, which, as every garage man and motorists knows, shortens the life of the tire, as oil rots rubber. The second or "Curtis" system with its knife blade throwers takes from the oil bath just sufficient oil for lubrication, and the oil which reaches the cylinder is further regulated by being thrown on a pin of predetermined size so that just the proper amount for lubrication and no excess is delivered to the cylinder. None is left to work over into the discharge line.

Other features found in the "Curtis" Compressor are:

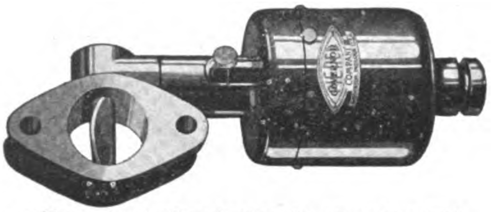
Hand unloader, which permits starting against full tank pressure without burning out the motor, blowing fuses, burning or jumping of the belt; safety cage, which prevents possibility of broken valves dropping into cylinder and wrecking the machine; fan flywheel, which throws a current of air against the cylinder, thereby assists in cooling; valves inspectable without removing the cylinder head; cylinder head can be removed without loosening a pipe connection; high and low level oil filling gauge, showing at a glance the amount of oil in the crank case; bearings of white metal, die cast, adjustable, renewable and non-cutting.

Curtis Compressors are handled exclusively through the jobbing trade. Prompt deliveries.

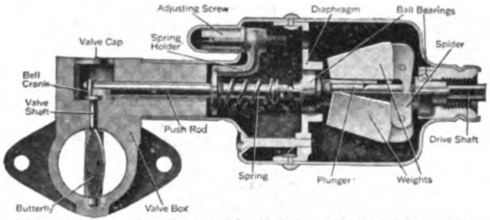
Manufactured by the Curtis Pneumatic Machinery Co., 1621 Keinlen Ave., St. Louis, Mo. Price from $25 up according to size and style of outfit. Made in five sizes. Each in three different styles of mounting.



The Pierce Governor, for controlling the speed of motor cars, employs the well known principle of centrifugal force and is entirely enclosed in a housing small enough for any commercial purpose. While every part must be accurate in construction and assembly in a device of this kind, the governor is exceedingly simple. The only rotating part is the weight spider, and as this runs on ball bearings in an oil bath, it must be very evident that the device is as wear and trouble proof as it is possible to make it. Naturally the governor requires some oil, but this is easily supplied through an oil cup in the case and is distributed to all moving parts by the weights on the spider.



The governor is mounted between the carburetor and the intake manifold and may be connected to the driving agent by means of either a solid or flexible shaft.



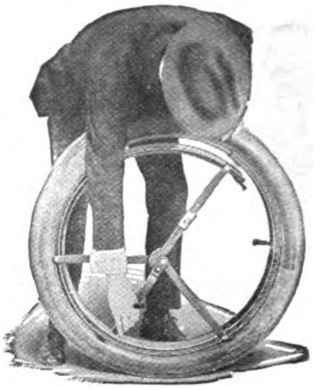
In the governor valve box the butterfly valve is normally in a position that does not obstruct the flow of gas, but it is closed so as to reduce the valve port area, just as soon as the motor reaches the predetermined speed. The valve is actuated by what is known as the fly-ball principle. The two weights are mounted on a spider, which revolves on ball bearings, and are so pivoted that as their velocity increases they are swung outward, forcing a plunger forward, which in turn operates the butterfly valve. The plunger is forced against a spring calibrated to a standard pressure so that as the velocity of the weights is lessened they return to normal position and the valve opens. Every Pierce governor is so constructed that the adjustment can be positively sealed by the owner of the truck, thus preventing any attempt on the part of the driver to change the speed.

Pierce Governors are now standard equipment on 89 makes of motor trucks and about 12,000 of them were furnished for government use during this year. This demand has more than doubled the gross sales in the past year and in order to meet it the manufacturing facilities have been increased 100 per cent.

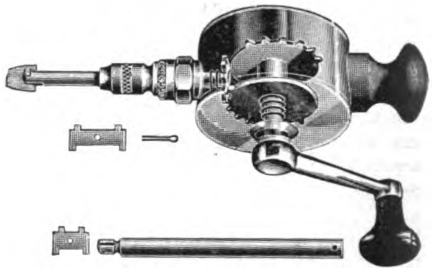
Manufactured by the Pierce Governor Co., Anderson, Ind. Write for prices and literature.

The Lawco Rim Tool removes a tire from any demountable transversely split rim in a minute or less. The tool is easy to adjust, easy to attach and will give quick results. As shown in the illustration this rim wrench is simply a set of claws that can be hooked over a rim and contracted by the simple motion of a lever. After the tire has been fixed it can be replaced while the rim is still in the grip of the tool. A toggle or reverse movement of the lever expands the tool and the rim as much as may be necessary to cause the ends to meet and permit latching. This tool may also be used to break open any rim latch. It is made of forged steel and is strong and simple in design. Prompt deliveries.

Manufactured by the F. H. Lawson Co., Cincinnati, O. Price, $3.50.



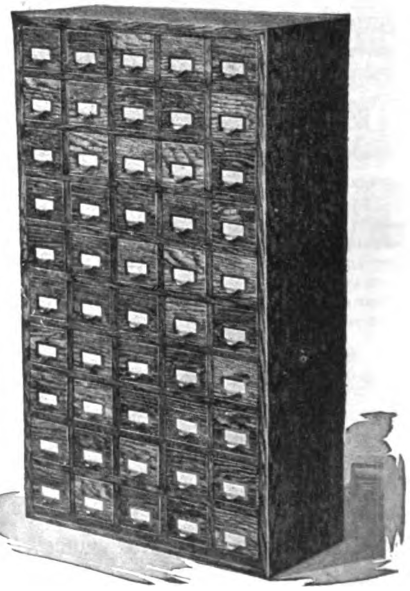
The Sioux Valve Grinder consists of a handle or crank operated wheel which drives through suitable gears the grinding tool.



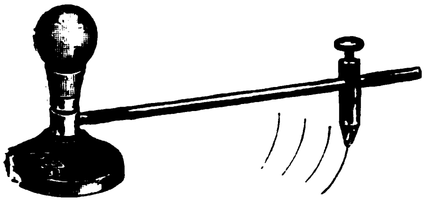
The gears are so arranged that by a continuous turn of the crank the tool is given a reciprocating motion, always traveling slightly forward in one direction, then in the opposite, until the whole circumference has been made. With the tool are furnished three special valve head fittings and a special length of shaft for extension purposes. Prompt deliveries.

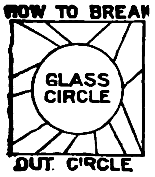
Manufactured by Albertson & Co., Sioux City, Ia. Price, $6.

The Universal Screw Cabinet is built primarily for garage use, being designed for screws, brads, nails, nuts, bolts, auto accessories and other small articles. It keeps shelves clean and prevents duplication of stock. It will save its small cost many times in a year in providing a place where every screw or part may be put and where everything can be found instantly when needed.



The Universal Screw Cabinet is made by the Hobart Brothers Co., Troy, O., being furnished in two sizes, 50 drawers (as illustrated), $19.85, and 100 drawers, $34.60.





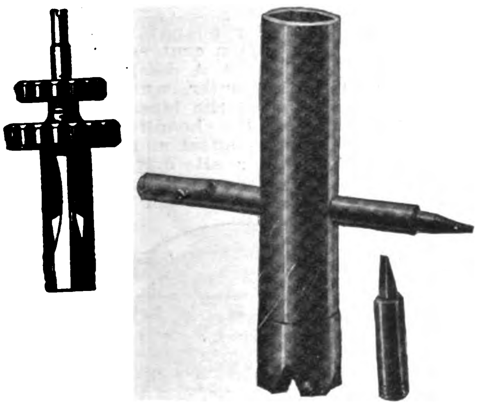
The Red Devil Circular Glass Cutter.

The Red Devil Circular Glass Cutter, No. 633. When in operation, the glass to be cut is placed on a flat surface, the base of the cutter at the centre of the glass to be cut. Careful measurement should be made and the cutter head adjusted to one-half the diameter of the circle to be cut, and fastened in place by the thumb screw. The base to be pressed down and held firmly in place by one hand and the head operated by the other, the point of beginning to be away from the body so as to give the hand of the arm operating the head an opportunity for a wide sweep. Some practice may be necessary, but the cut can be made by a firm pressure, not too heavy, and as nearly as possible by one sweep around the circle without stopping. In cutting, the base must not be allowed to slip or change position, and if necessary, two sweeps or two cuts may be made, as nearly as possible a full one-half circle in each.

The small illustration shows how to break the glass to leave the circular glass for use. Cuts are made from the outer circumference of the circle to the edge of the glass. The pieces can be broken off by gently tapping on the under side of the cuts, but away from the edges of the circle, to prevent breakage of the inner portion

Manufactured by the Red Devil Tool Works, Smith & Hemenway Co., Inc., 129R Colt St., Irvington, N. J. Price, 50 cents.

The A. & H. Valve Tool is an implement for truing up both internal and external valve and cap threads of nipples of pneumatic tires. It may also be used for cutting threads, making it a valuable addition to the tool kit.



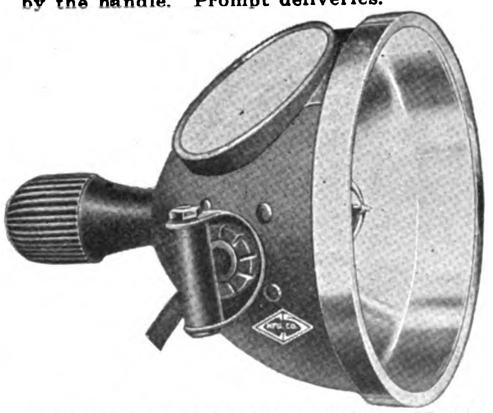
With the True Threader Tool one can recut inside plunger threads, recut outside nipple threads and take out plungers. Prompt delivery.

Manufactured by the A. & H. Manufacturing Co., Inc., 505-507 West 45th St., New York City. The combination tools, $2.25, or $1.50 each.

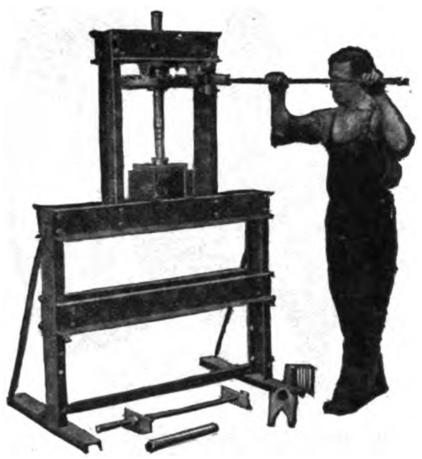
The Black & Decker Tire Inflater Outfit consists of a tank mounted upon an iron base and fitted with compressor, pressure gauge and automatic switch. Immediately upon making the electrical connection the motor is started and air is pumped into the tank until a pressure of 150 pounds per square inch has been reached, then the automatic pressure switch comes into action and stops the machine. To inflate a tire the Romort air chuck on the end of the hose is pressed over the tire valve and the pressure in the tire will rise instantly, it is claimed, to any number of pounds desired. When enough air has been used to cause the pressure in the tank to drop to 125 pounds, the automatic switch starts the motor and brings the pressure back to 150 pounds. After the first electrical connection has been made the machine requires no further attention, since its operation is entirely automatic. A cover is furnished for the automatic switch, which completely encloses all mechanical and electrical parts. These machines can be used on 110 volt circuits, direct or alternating current of from 25 to 60 cycles. Prompt deliveries.

Manufactured by the Black & Decker Manufacturing Co., 304 Water St., Baltimore, Md. Price, $215. Write for catalogue of complete line.

The Culver-Stearns' Giant Searchlight is made of steel finished in dull black enamel and fitted with a brass, silver plated over nickel reflectors, scientifically laid out to give the best light under all conditions, and a rear view mirror if desired. When fitted with a nitrogen bulb and properly focussed, it is said to give enough light to enable one to see guide boards, numbers, etc., at practically any distance that the eye could read in daylight. The bracket is made of pressed steel and designed with a universal joint so that the light beam can be thrown in any direction. The light is controlled by a single point switch which is operated by the handle. Prompt deliveries.



Manufactured by Culver-Stearns Manufacturing Co., Worcester, Mass. Price, $6.

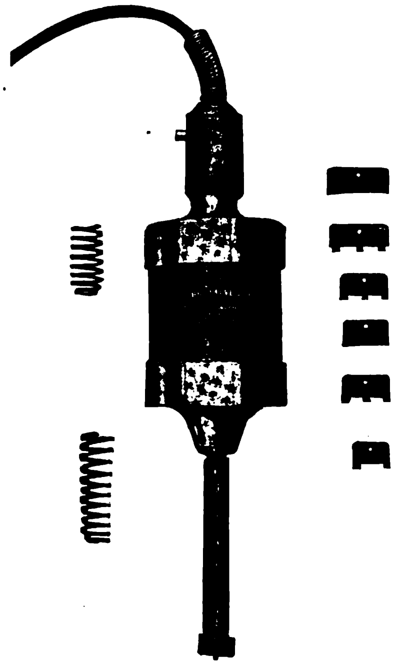


The Manley 22-Ton Universal Auto Press has a high power leverage, starting at 2200-1 and automatically increasing at the end of stroke to 5000-1. This is obtained by the lever fitting into the socket on ratchet block. The paul uses the same notches in hand wheel and tremendous pressure is obtained on the screw with little effort. An important feature of this press is that the screw being exposed at the top may be struck a sharp blow in obstinate cases, such as a rusted shaft, which pressure alone will not move.

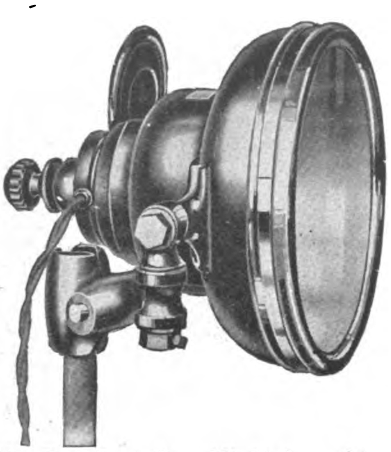
The low power press (1000-1) leverage is 10 times quicker than a ratchet. Prompt deliveries.

Manufactured by the United Engine and Manufacturing Co., Hanover, Pa. Price complete, $105.

The Eclipse Valve Grinder is a practical and reliable electric driven machine, designed and built for the sole purpose of grinding valves to a perfect seat with the greatest possible dispatch and economy. The vertical handle with plunger switch affords perfect control, while the weight of the device (4½ pounds) is so proportioned as to secure the proper pressure for the best results; and the smooth gliding motion imparted by the ballistic movement produces a finish to both valves and seat that is free from grooves, scratches or other evidences of poor workmanship. With this machine few valves require as much as a four-minute treatment—many are finished in one minute.



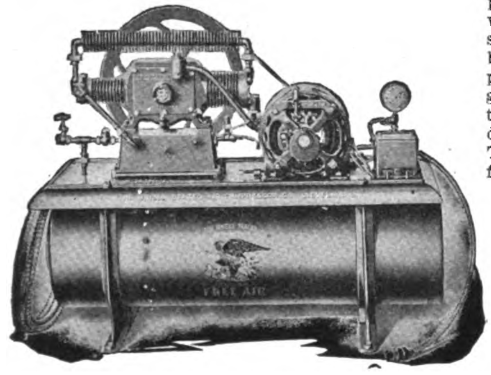
Manufactured by the Eclipse Valve Grinder Co., 1230 Lydia Ave., Kansas City, Mo. Price, $40.



The Red Spot Searchlight brought out by the F. W. Wakefield Brass Co., is larger in size and of greater power than the average spotlight. It is seven inches in diameter and has a 30 candle power lamp. The operator of the car may flash either a white or red beam of light from the lamp by turning a switch, making it serviceable, either as a spotlight or danger signal. Prompt delivery.

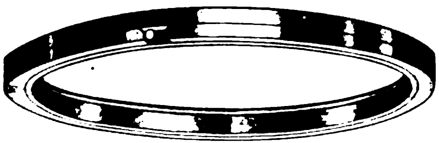
Manufactured by the F. W. Wakefield Brass Co., Vermillion, O. Price, $10.

The De Luxe H 34 U. S. two-stage automatic air compressor has many exclusive features that make it an efficient and complete air plant. The air is drawn into a large area cylinder through a special intake silencer device and is compressed to 40 pounds, after which it is delivered to a smaller diameter high pressure cylinder through an air cooled pipe leading from the head of the smaller. The air is forced by a smaller piston through a special check valve to a filtering trap, where foreign matter and oil is removed, and thence through an automatic adjustable safety valve to the storage tank. Pressure control is by automatic valve, which stops the engine when a predetermined pressure is reached falls below a given mark. Cylinders and crank case of compressor are cast en bloc. Prompt deliveries.



Manufactured by the United States Air Compressor Co., Cleveland, O. Prices furnished on application.

Pressure Proof Piston Rings completely eliminate the causes of carbon, insure perfect lubrication and restore maximum power. A spring expander automatically takes up any excess width in the ring groove, consequently all possibility of either oil or gas passing between the cylinder walls and the piston is eliminated.

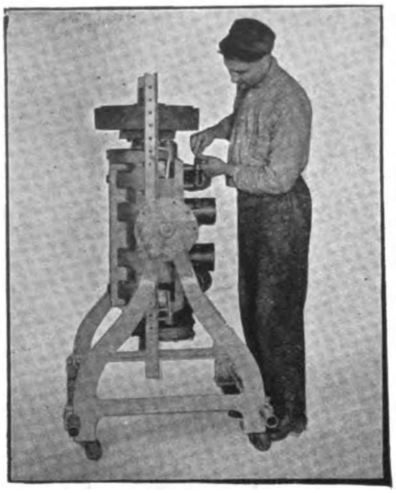


Pat. March 2, 1915, Feb. 29, 1916.

Manufactured by the Pressure Proof Piston Ring Co., 169 Massachusetts Ave., Boston, Mass. Write for prices and literature.

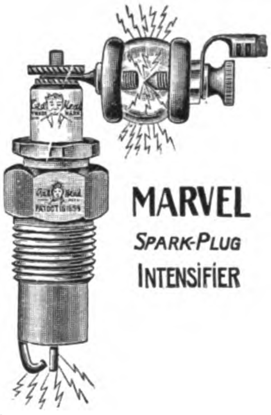
The Continental Motor Stand is universal handling the Ford engine or any three-point suspension engine from any kind of a passenger car, truck or tractor. The stand is portable and can be moved to adjust the engine in any position.

The engine is fitted to the stand in the same position that it is fitted to the chassis and all bolts and clamps necessary are furnished as complete equipment with the stand. It is adjustable in width from nothing to 30 inches. Has a 5-inch adjustment in height and can be locked in over 25 different positions. Prompt delivery.



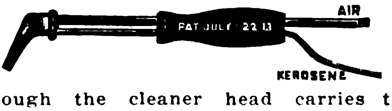
Manufactured by the Continental Auto Parts Co., Knightstown, Ind. Price, $50.

The Marvel Spark Plug Intensifier overcomes ignition trouble on internal combustion engines. The spark that is produced at the point of the spark plug when the spark gap is in series with the spark plug, results in a fatter, stronger, better spark than would otherwise be produced. The spark produced with the gap permits the use of a leaner mixture, that not only saves gasoline, but also cuts down carbon deposits in the cylinders. This is because carbon comes largely from the partially burned gasoline, resulting from the use of too rich a mixture. Prompt delivery.



Marketed by Wm. Simpson, 228 S. Wells St., Chicago, Ill. Price, 50 cents each.

The Wagner Engine Cleaner, which is operated by six pounds air pressure, enables one to clean places that cannot be reached in any other way and through its use one quart of kerosene will clean any size motor. The passage of the air through the cleaner head carries the kerosene with it in the form of a spray. Delivery 30 days after receipt of order.



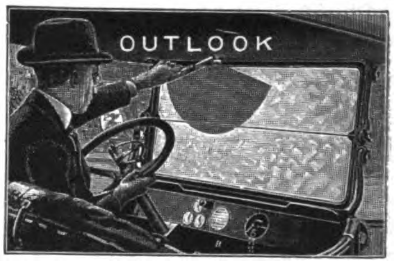
Manufactured by Wagner Specialty Co, 1902 Broadway, New York City. Price, $2.

The Shurnuff Windshield Ventilator consists of two black enameled metal uprights attaching to the hinges in the center of the present Ford windshield and fastening to the cowl where the present windshield castings are set. These uprights are so shaped as to make the sides of the shield rain proof. A metal and rubber strip is provided, which, when fastened to the cowl, makes it rain proof at the bottom, and a metal handle is also furnished for attaching to the lower sash in order that it may be pulled backward. Four small plates are furnished, same being attached to lower corners of 1915-16 and early 1917 shield only. Prompt delivery.

Shurnuff
WINDSHIELD VENTILATOR

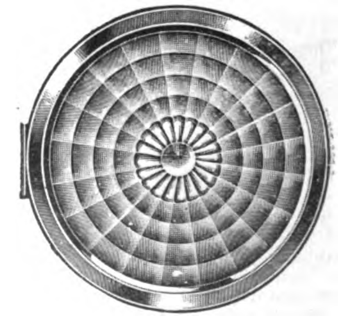
Manufactured by the Shurnuff Manufacturing Co., St. Louis Mo. Price, $7.50.

The Outlook Cleaner is attached to the windshield of the automobile. An adjustable wiper is held against the outside of the windshield and fastened to it is an arm which may be reached from the seat of the machine. By swinging this arm through a half circle, rain, snow or fog is automatically removed from the portion of the windshield over which the wiper passes. This device is made in two styles, one for open cars that is attached to the top of the windshield, the other for closed cars, which is attached through the glass. Prompt deliveries.



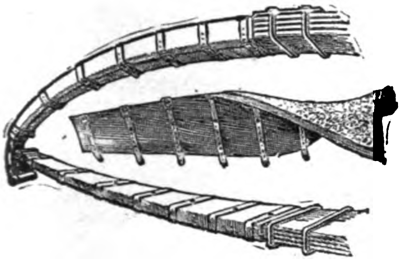
Manufactured by the Outlook Co., 5525 Euclid Ave., Cleveland, O. Price, $1.50.

The More-Lite Lens is composed of a number of triangular shaped prisms, radiating from a common center and separated by diagonal lines. A daisy petal design is cast at the center, which adds to the attractiveness of the lens. It is designed to diffuse the headlight beams without the blinding effect and yet illuminate sufficiently for all driving needs. In either clear white or amber glass for any size of headlight. Prompt deliveries.



Manufactured by L. E. Smith Glass Co., Mount Pleasant, Pa. Prices range from $1.50 to $2.25 for clear white lenses and from $2 to $2.75 for amber.

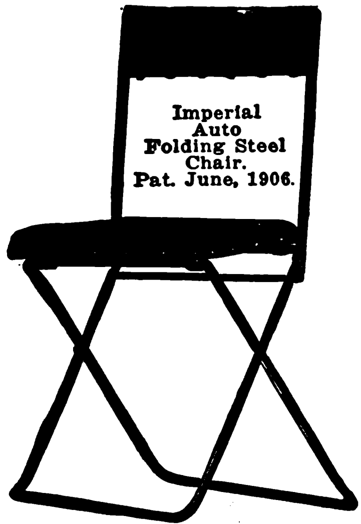
The Woodworth Lubricating Spring Covers are made of either leather or an imitation and completely enclose the springs, keeping out dust, dirt, moisture and rust and keep every spring automatically lubricated, including parts which are inaccessible to ordinary methods of greasing or oiling. This provision eliminates squeaking, gives greater riding comfort and prevents spring breakage. The edges of the covers overlap on the underside and are held in place by small straps and buckles, which permit of perfect adjustment. They are finished in black and made of the best quality of genuine leather in one style and of a good grade imitation leather in the cheaper quality. A thick felt wicking forms the lining and provides the means to hold and automatically distribute the oil. One oiling will last a year or more. Prompt deliveries.



They are made in complete sets for Fords and in seven other sizes to fit all other cars.

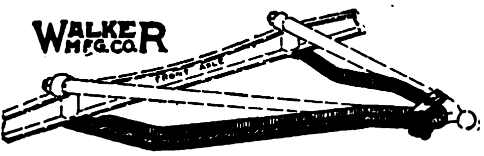
Manufactured by the Woodworth Manufacturing Corporation, Niagara Falls, N. Y. Price per cover: Leather, 14 in., $1.10; 16 in., $1.30; 18 in., $1.50; 20 in., $1.65; 22 in., $1.80; 25 in., $2; 28 in., $2.25. Imitation, 14 in., 70 cents; 16 in., 80 cents; 18 in., 90 cents; 20 in., $1; 22 in., $1.10; 25 in., $1.30; 28 in., $1.50.

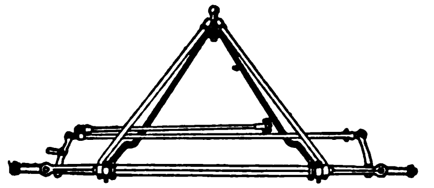
The Imperial Auto Folding Chair was primarily designed for a convenient auxiliary folding seat in an automobile. It folds compactly in a small space when not in use and is an ideal chair for the camp, beach, launch or car. The seat and back rest are padded with felt and upholstered in black water proof art leather. The frame is made of special oval formed steel finished in black enamel.



Manufactured by the Imperial Bit and Snap Co., Racine, Wis. Write for prices and literature.

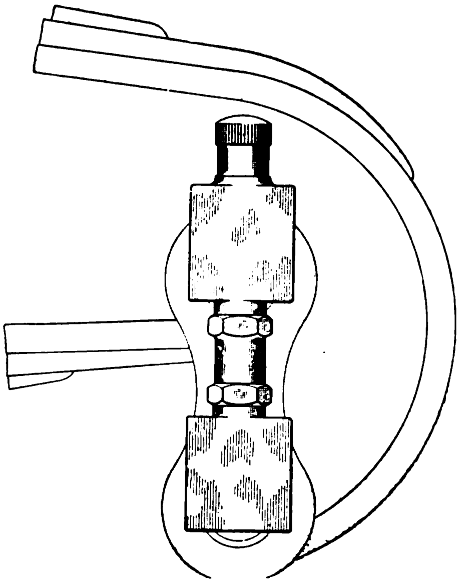
The Ford Auxiliary Radius Rods for reinforcing the regular Ford radius rods also brace the front axle, keeping it straight, thus bracing and preventing the breakage of the regular rods. They are attached without drilling, for they simply clamp onto the rear of the regular rod and are fastened to the axle by using the regular Ford perch bolt. Made of solid three-quarter inch steel rods, with malleable clamp, the outfit weighs 12 pounds, and a still lighter type of angle iron stock weighing five pounds and a tubular type of the same weight.





Manufactured by the Walker Manufacturing Co., Racine, Wis. Prices from $2 to $4.

The Meckel Shackle Bolt Lubricator is secured to the side of the spring shackles and lubricates both the upper and lower bolt. It is designed to fit any make of car in place of the grease cups at present in use. A valve set in motion by the car when running permits the oil to flow and as soon as the car stops the flow of oil is automatically shut off. The lubrcators for double shackle bolts have two reservoirs, while those for single spring bolts and spindle bolts have only one. Either of these can be attached in a few minutes the manufacturers claim. One filling of the reservoir is said to last 2500 miles of ordinary travel. Fair deliveries.



Manufactured by the Meckel Lubricator Co., Lakewood, O. Prices: Style "A," double shackle bolt lubricator, $2 each; style "B," single spring bolt lubricator, $1 each; style "C," single spindle bolt lubricator, $1 each.

J. H. Williams & Co., Brooklyn, N. Y., have developed standard lines of every "Superior Drop Forged Wrenches" to meet all recognized trade needs. They now carry some 40 patterns in about 1000 sizes with openings running from 3/16 to 7⅝ inches.

Most of their lines are carried in three standard conditions of finish: Unfinished, forgings are milled only; semi-finished, forgings are milled, case hardened, black lacquered and have heads ground bright; finished, forgings are polished, case hardened (mottled color) and lacquered heads bright.

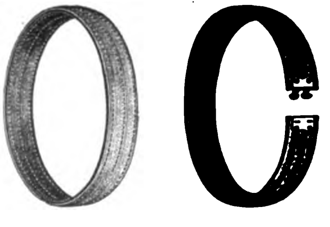
For conservation purposes as requested by the War Industries Board, this company, in common with all other leading drop forged wrench makers, have discontinued for the duration of the war the manufacture of several lines, as well as all finished wrenches. In most cases those styles discontinued are important, but they can usually be replaced without great sacrifice by one of the retained lines. While the present stock of discontinued goods lasts, however, it is available for current demand.

In order to encourage the selection and use of proper wrenches and to reduce to a minimum without impairing efficiency the stock and assortment carried by dealers and users, many "Wrench Sets" for a wide variety of purposes have been developed. These "Sets" in serviceable canvas pocket rólls, make for convenience, good order and neatness—they supply the tool that is wanted when it's wanted, without duplication and with no size missing.

As an instance of the efficiency of these 'Wrench Sets" note the two listed herewith: Set No. 4, Big Six, six standard wrenches for U. S., standard nuts and cap screws. Openings 7/16 to 1¼ inches, 12 sizes, no duplicates. Set Ford "A," 12 wrenches for Ford services with openings 19/32 to 57/64 inches, 13 sizes, no duplicates.

This company is operating two large plants at Brooklyn and Buffalo, N. Y., and maintains in addition a western office and warehouse at Chicago. With their large manufacturing facilities and three distributing centers they are in a position to handle promptly and efficiently not only demands for Superior Drop Forged Wrenches, but also for their machinists' tools, including "vulcan" tool holders, lathe dogs, clamps, etc.

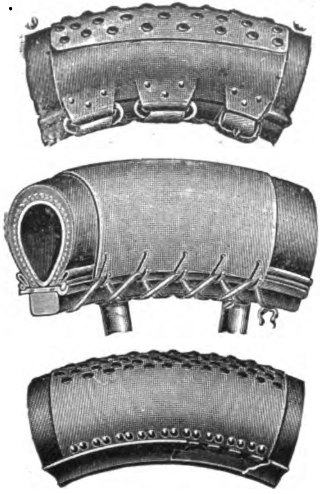
Woodworth Fan Belts for Fords are made of a very strong inelastic webbing faced with a specially prepared leather, giving a strong grip and long wear. They are strongly made with three rows of stitching and are furnished in both endless and detachable types. This same belting is also furnished in coils for splicing with belt hooks.



Manufactured by the Woodworth Manufacturing Corporation, Niagara Falls, N. Y Prices: Ford endless belt, 40 cents each; Ford detachable belt, 50 cents each.

Woodworth Hook-On Strap and Lace Tire Boots are for use in strengthening casings over weak spots as a means of preventing blowouts or for placing over blowouts in emergency so that a new tube or repaired tube can be used until a new casing is secured or the old one repaired.

The hook-on type are made of heavy leather in two styles, one studded, with middle filled with flat head rivets and the other reinforced with extra strip of leather under rivet heads. The strap boots are held in place by lacing across the rim with strong strap adjusted by buckle. They are reinforced on the center and have flat head rivets to protect the leather from wear. The lace boots, similar in type, do not have extra reinforcement of leather in center and are fastened by lacing with chrome leather lacings passing through steel hooks in the edge of boot.



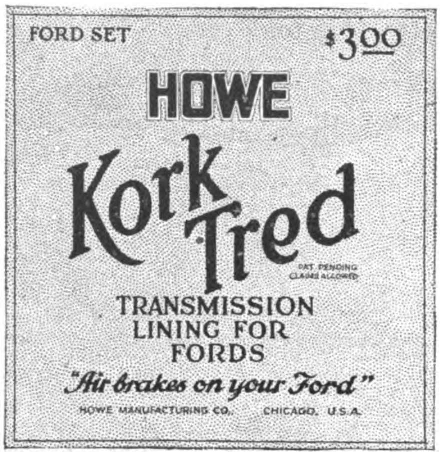
Manufactured by the Woodworth Manufacturing Corporation, Niagara Falls, N. Y. Write for prices and literature.

Mistokleen is a varnish preservative which not only improves the gloss on automobile car finishes, but makes the coats flexible and lasting. It is a scientifically blended product, containing the best known polishing agents. It is applied in the most simple way, being sprayed on and after the surface has been polished slightly, the body appears clean and bright. It can also be used to remove tar and grease from the car without damage to the finish.

MISTOKLEEN
MISTOKLEEN

Manufactured by the Crew Levick Co., 111 N. Broad St., Philadelphia, Pa. Prices: Ready filled sprayer outfit complete, $1.25; quart can of Mistokleen, $1; gallon can, $2.75.

Howe Kork Tred Transmission Lining for Fords has inlays of cork. The exclusive and distinctive feature of this lining is the air cushioned retaining cup, which is riveted in the lining and holds the cork disk securely in the fabric. As a result of such construction a pocket of air is trapped between the cork disk and the bottom of the cup, the cork disks engaging the drum first when pressure is applied to the brake pedal. The braking pressure, however, compresses the air in the cups and drives the corks flush with the fabric, thus permitting the fabric to take its full share of the wear and allowing the cork to retain its full frictional value.


FORD SET
$3.00
HOWE
Kork Tred
PAT. PENDING CLAIMS ALLOWED
TRANSMISSION LINING FOR FORDS
"Air brakes on your Ford"
HOWE MANUFACTURING CO. CHICAGO, U.S.A.

When the pressure is released the compressed air in the cup brings the cork back to its original position—protruding slightly above the surface of the fabric—so that each disk possesses its entire braking value when brake pressure is again applied.

"Kork Tred" lining, according to the maker, not only eliminates all the troubles common to ordinary linings, which become smooth and slippery with wear and lose their gripping qualities, but the cork disks will not break loose from the fabric.

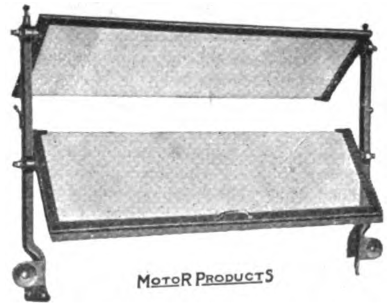
Manufactured by the Howe Manufacturing Co., Chicago, Ill. Price, $3 per set.

The **"Liberty Bell"** is different from the usual type of signal. It's tone is distinctive, clear and musical. It is very effective, yet does not offend the hearing. At the same time the signal sounds a brilliant red light flashes through the lens surmounting the bell. By this means the warning is conveyed to both the eye and ear of the pedestrian or approaching motorist. Prompt deliveries on reasonably large orders.

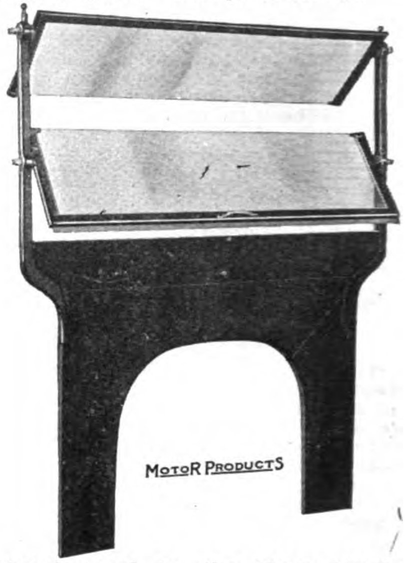
LIBERTY BELL

Manufactured by the Liberty Bell Co., Cleveland O. Prices from $6 to $14.

Motor Products Windshields in two new styles are being marketed to supply a demand from the trade for this popular type. Both have the "rani vision" and ventilation features. The passenger car windshield shown in the illustration is complete ready for attaching by simply taking off the old windshield. It can be equipped with top fasteners if desired, which will eliminate the straps originally furnished for holding the top.



The commercial type of windshield shown is equipped either with or without the slip dash illustrated, and eliminates the stay rods which usually form a part of Ford commercial car equipment. The new shield, as may be seen, bolts directly to a straight dash. The brackets being so constructed that they hold the shield rigidly in place. Prompt deliveries.



Manufactured by the Motor Products Corporation, Mack Ave., Detroit, Mich. Prices: Model Z-17, $17; model 100, $19; model 10, $22; slip dash, $3.50 extra.

The Adamson Model E Vulcanizing Set includes vulcanizer, can of Adamson dry fuel, a box of 12 patches, measuring cup, sand paper and directions.

ADAMSON DRY FUEL
No flame It Glows!
ADAMSON

While serving its purpose as well as any of the large outfits for vulcanizing, it is much handier and efficient, as it can be packed away in the car among the tools or in any small space and is ready for use at an instant's notice. Prompt delivery.

Adamson Manufacturing Co., East Palestine, O. Price, $1; extra box of patches, 25 cents; extra can of dry fuel, 50 cents.

Mistokloths are individual pieces of cloth of open texture, soft and free from lint and are packed in handy packages that can be readily stored in the tool box or door pocket of the car. They fill the need that is ever present about an automobile and are particularly suited for polishing the body, as they rub dry and polish the smoothest surface without scratching. For cleaning and polishing reflectors, lenses and other parts, work which requires an absolutely clean cloth, the Mistokloths are excellent.

MISTOKLOTHS
"AS OLD AS THE INDUSTRY"
CREW LEVICK
PHILADELPHIA, U.S.A.

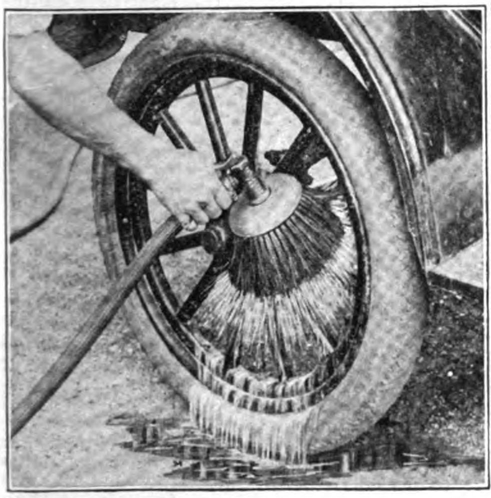
Manufactured by the Crew Levick Co., 111 N. Broad St., Philadelphia, Pa. Prices: Standard size box, containing 12 Mistokloths, 50 cents; small package of six "Kloths," 25 cents.

Woodworth Easyon Chains for pneumatic tires can be quickly and readily put in place without trouble, as the car does not have to be jacked or moved, the individual chains being snapped on over the tire. Four single chains on each wheel afford traction and prevent skidding. They come packed in bags, eight comprising a set.

Easyon Chains

Manufactured by the Woodworth Manufacturing Corporation, Niagara Falls, N. Y. Prices: For 3 or 3½ inch tires, $4 a set; for 4 or 4½ inch tires, $5 a set; for 5 or 5½ inch tires, $6 a set; extra or repair cross chains, 25 to 40 cents each.

The Water Spray Auto Brush is made of the best grade of bristles, circular in shape and has a hose connection in the center through which water is sprayed. The patented part consists of an aluminum valve forming the handle of the brush and controlling the flow of water as the brush is used. As opening in the bristles enables the user to direct a spray of water at a distance and increase the volume as desired.

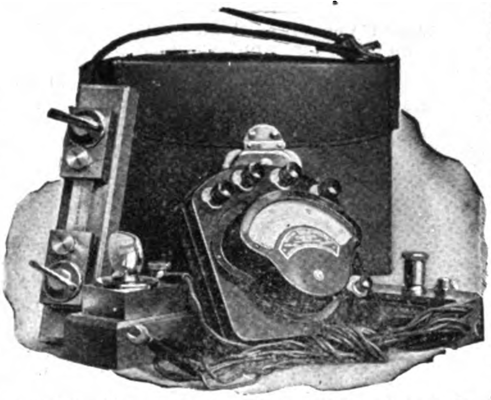


Marketed by Scully-Jones Co., Chicago, Ill. Prices: Short handled Water-Spray Auto Brush, $8; 3-foot extension Water-Spray Auto Brush, $10; extra brushes, $3.75.

The Champion Spark Plug Cleaner consists of a glass tube containing 50 loose, hardened steel needles. One end of the tube is open and fitted with a rubber bushing into which a spark plug can be screwed in exactly the same manner as it fits into the cylinder head of the engine. The tube is half filled with gasoline, the plug screwed into the bushing, then the whole is shaken vigorously for a minute or two and the plug is cleaned as thoroughly as if it were disassembled and cleaned. When the tube is shaken it starts the needles in motion and they peck away at the inner surface of the plug where the carbon has accumulated. Prompt deliveries.

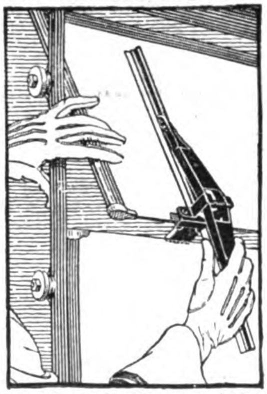
Manufactured by the Champion Spark Plug Co. of Toledo, O. Price, 75 cents.

The Weston Garage Testing Instrument indicates and locates accurately and quickly the troubles to which electrical systems are liable. Among these are those attributable to deteriorated or run down batteries; short circuits or grounds at any point due to worn sockets; open circuits due to vibration, abrasion or loose lamps; leaks that result in continuous discharge of batteries; brush troubles in the motor or generators or worn commutators, etc. The Weston instrument detects these troubles and is reliable, permanent in calibration and generally serviceable. The instrument illustrated is the Weston model 280 voltammeter, with external shunts for ampere measurements. It is pocket size, has a uniform and legible scale, is quick in action and is shielded from disturbing influences of external magnetic fields. With its six different ranges (300, 30 and three amperes and 30 and three volts and 100 millivolts) it is actually six instruments in one. The price of the instrument is exceedingly low for such equipment. The special inducements offered by the manufacturer will interest every progressive member of the trade. Deliveries contingent upon conditions.



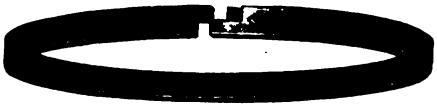
Made by the Weston Electrical Instrument Co., 103 Weston Ave., Newark, N. J. Price, $32.50.

The Tri-Co Rain Rubber can be easily attached and readily removed, cleaning both the top and bottom glass of the windshield the full width across. Multiple faces of gum rubber make the cleaner flexible with two cleaning surfaces on each arm. The rivets are topped with celluloid heads, so that they will not scratch the glass. One desirable feature is that the device can be removed by simply opening the glass and lifting the rain rubber off. It is made in five different models, designed to cover any type of two-piece windshield. Prompt delivery.



Manufactured by Tri-Continental Corp., Buffalo, N. Y. Price, $1.50.

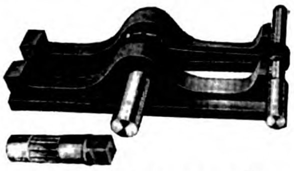
The Taylor Leakage Proof Ring for Fords the makers claim does away with all loss of compression, oil throwing, carbon trouble and loss of power. The interlocking, underlapping joint makes a perfect seal, which compression or explosion gases and oil cannot break. It is made in 3¾x¼ size only and is strong and durable, being ground to accurate size. It wears uniformly, having no points to break or catch carbon. Prompt deliveries.



Manufactured by the G. H. Dyer Co., Cambridge, Mass. Price, 50 cents each.

The Storm Connecting Rod Bearing Reamer Jig and Straightening Gauge has been on the market less than six months and large numbers have already been sold. By the use of this jig the connecting rod bearing may be reamed to correct size and alignment by even an inexperienced man and in one-tenth the time ordinarily required. Above all the tool has the advantage of mechanical accuracy. In other words, an inexperienced man will do more and better work with it than is possible even by an expert without it.

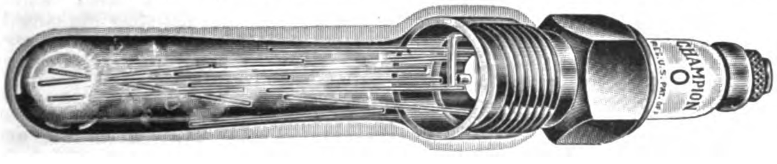
It is highly important even where a burning in stand is used, it being a simple matter to ream to a predetermined undersize. Thus each will be burned uniformly and without undue strain. Another advantage of the reamed bearing resides in the fact that any grit or foreign matter that may have embedded itself in the metal is removed, leaving nothing but the clean, pure metal. Testing surfaces and arbors enable the work man to quickly determine and correct any defect of alignment, which is of great importance and the only way to insure a good job and a smooth running motor.

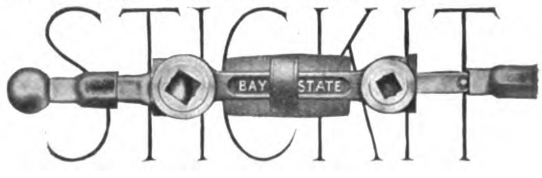


Manufactured by the Storm Manufacturing Co., Thompson, Ia. Price with reamer and arbors, $30.

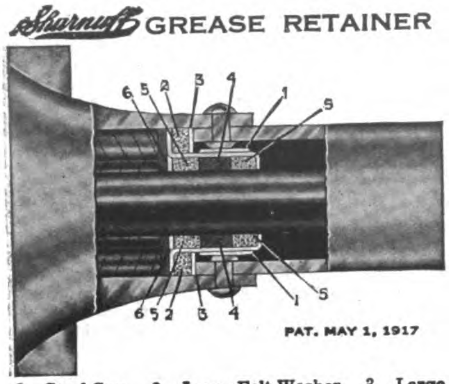
Stickit is a new wrench set that consists of a double end ratchet wrench and seven strong stamped steel sockets strung on a square steel shank. One end of the wrench fits the shank and the other end the sockets. The wrench also fits four sizes of nuts and with the socket 11 different sizes of nuts and cap screws. The other end of the shank has a ball stop and a spring ball for holding the socket in use in place. It is not necessary to remove all the sockets from the shank in order to use it, although it can be done in an instant. Prompt deliveries.

Manufactured by the Bay State Pump Co., Boston, Mass. Price, $3.50.





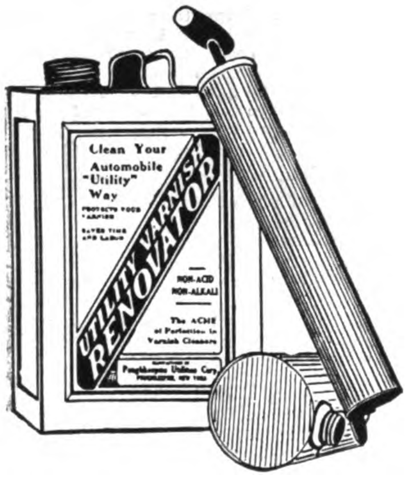
Shurnuff Grease Retainer for Ford axles consists of three felt washers, one rubber asbestos washer, a cold drawn steel cup and two retaining rings. The retainer remains stationary, the two rivets that are already in the axle preventing it from turning. The company furnishes a counter display free to dealers with each dozen pairs. Prompt deliveries.



1. Steel Cup. 2. Large Felt Washer. 3. Large Steel Retaining Ring. 4. Asbestos Washer. 5. Small Felt Washers. 6. Small Steel Retaining Ring.

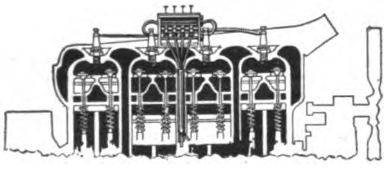
Manufactured by the Shurnuff Manufacturing Co., St. Louis, Mo. Price, 90 cents per pair.

The Utility Varnish Renovator is applied with waste or cheese cloth, or by the spray method. The manufacturers claim that this cleaner will remove road tar and that it contains no chemicals that will damage the finish in any way, being non-acid and non-alkaline. Prompt deliveries.


Clean Your Automobile "Utility" Way
UTILITY VARNISH RENOVATOR
NON-ACID
NON-ALKALI
The ACME of Perfection in Varnish Cleaners
Poughkeepsie Utilities Corp.

Manufactured by Poughkeepsie Utilities Corporation, 36 Winnikee Ave., Poughkeepsie, N. Y. Prices: $3 per gallon; $1 per quart; 50 cents for 12 ounces; 25 cents for four ounces.

The Harlan Ignition and Spark Plug Tester is a device to be attached to any internal combustion engine using high-tension ignition, from four to 12 cylinders, and designed (to test) for defects in the ignition system or the spark plugs, thereby facilitating the location of any trouble.



The tester weighs 1¾ pounds and consists of a metal frame connected to the engine head, or grounded with relation to the engine on either side. In this frame is mounted three insulated rollers, which hold the terminal connections, the center roller bearing, stationary.

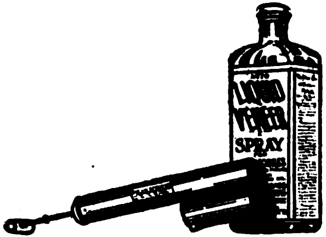
To test the ignition the bottom roller is turned downward, this action separating all the terminals at the same time, showing the sparks on their way to the engine plugs, thus instantly revealing the hot or weak sparks.

To test the spark plugs for high resistance the top roller is turned, bringing the resistance testing bar down. For testing for fouled or short-circuited spark plugs the contact members which extend above the frame are pushed down into contact, enabling one to locate the defective plug. Made for engines with 4, 6, 8 or 12 cylinders.

This tester can also be used as a spark intensifier. Prompt deliveries.

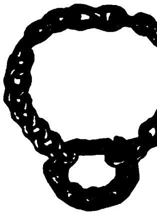
Manufactured by the Harlan Ignition Instrument Manufacturing Co., Watsonville, Cal. Prices: $8 for four cylinder type, or $2 per cylinder for any model.

Liquid Veneer, a cleaner and polish for automobiles, is applied with a sprayer and loosens the dust and dirt so that it can be readily wiped off with a cloth without scratching the body finish. Its use makes washing unnecessary only when the car has become heavily caked with mud. It is equally effective on windshield, leather upholstery, top or body.



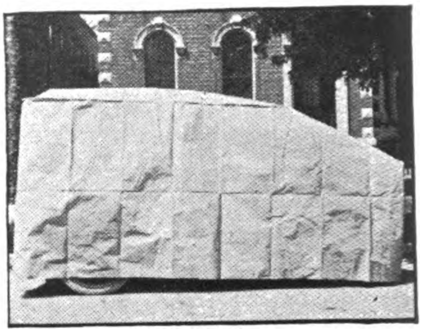
Manufactured by the Buffalo Specialty Co. Buffalo, N. Y. Price, $1.50 with L. V. sprayer.

Woodworth Easyon Truck Chains are designed to handle with ease and quickness so that they can be put in place when needed without unnecessary work and trouble and removed with the same dispatch. They are substantially made to give long service and so that the tread chain is renewable. All parts in contact with the spokes are leather covered to prevent marring the finish. They are sold singly or in sets of 12.



Manufactured by the Woodworth Manufacturing Corporation, Niagara Falls, N. Y. Prices: Small chains, $7.80 per set; medium, for tires from three to five inches, $12 per set; large, for tires from five to seven inches, $15 per set; small dual chains for dual tires smaller than four inches, $19.20 per set; large dual chains for dual tires larger than four inches, $24 per set; extra cross chains from 35 cents to $1.50 each, according to size.

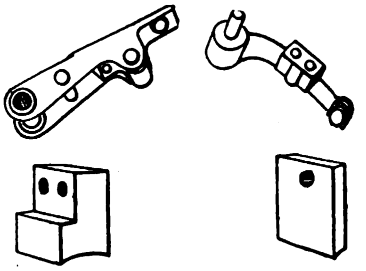
The Kennedy Auto Covers are a live proposition for dealers. The season is almost at hand when car owners will store their automobiles and these cars should be protected. This company has designed covers for practically every purpose of storage. The cover protects the car from dust, dirt, cold and moisture. The makers claim that there is nothing better to put over a car for storage and the advantages of this cover are easily realized, for it also protects the tires by excluding the light and thereby preserving the rubber. The covers are made in different sizes for five and seven-passenger cars, also electrics. They are made of heavy, durable paper, that is securely reinforced to prevent tearing and which completely covers the car. There is also a cover of lighter weight paper and without the reinforcements, which gives good service when the cover is not to be used more than once. Five-passenger covers will cover the popular priced touring car and roadster with wheelbase up to 115 inches. For larger cars the seven-passenger size is preferable. Ford covers are for cars with short wheelbase. Shipped in lots of six or more.



Made by the Kennedy Car-Liner and Bag Co., Shelbyville, Ind. Write for prices and literature.

Superior Parts for all makes of ignition devices and Superior Brushes for every type of starting and lighting system are made of the very finest grade of materials, guaranteed to fit perfectly and are sent with the understanding that the full purchase price will be refunded for any part that does not give entire satisfaction.

The parts used in the electrical equipment, the very heart of the automobile, engage the attention of every automobile dealer and repair man in the particulars of their quality and the maintenance of an adequate supply. In marketing Superior parts the makers emphasize these points: Prompt attention to every order; the making of parts from the finest grades of materials; the most attractive prices to be found in this market and deliveries when promised. These elements of their goods and service have played an important part in the huge success of Superior parts. Fiber and hard rubber insulation bushings, washers, etc., for every type of electric device used on automobiles are manufactured by this company, which also rebabbitts connecting rods for Ford, Studebaker and other engines. Prices on the latter work are in accordance with the sizes. Prompt deliveries.



Manufactured by the Specialty Manufacturing Co., 637 Massachusetts Ave., Arlington, Mass. Write for prices and literature.

The Gates Vulco-Cord Belt, by a patented process, is built on a curve to fit the pulley. The makers claim that it positively grips, so that it cannot slip on the pulley—and will not stretch. The company makes these belts in standardized sizes, each belt carrying a label, which shows the cars it will fit, thus making it possible for the dealer to fit all the cars in his territory from a stock of eight or nine standardized sizes.

Patented and manufactured by the Colorado Tire and Leather Co. at Denver, Col. Write your jobber for literature and quantity prices.

The Carson Kickless Crank eliminates the danger of injury from back firing when cranking an automobile engine. This device is sold under a forfeit of $100, which may be collected from the manufacturers in case a person using the device is injured by the kick of the crank handle. The mechanism of the device is quite simple and it is claimed that there is practically nothing to break or get out of order. It can be attached in a few minutes.

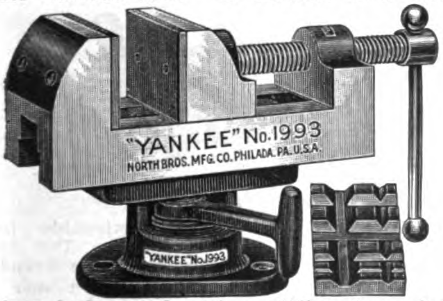
Prompt deliveries.

Manufactured by Carson Manufacturing Co. of Richmond, Va. Price, $7.50.

The Ambu Plate Press is for use in pressing the negative plates of storage batteries to reduce the bulging of the active material and to straighten the grids should they buckle. It has no metallic sections that can be reached by the dripping acid and whatever acid is squeezed from the plates runs through a trough into a receptacle so that no injury is done to the floors. It will press three groups of plates at the same time.

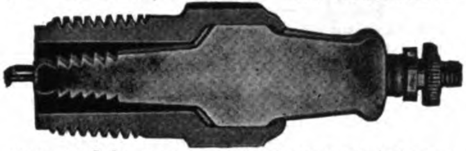
Manufactured by the American Bureau of Engineering, Chicago, Ill. Price, $32.50.

The Yankee Vise, No. 1993, is designed for various uses. It consists of a cast iron body fitted with a sliding jaw, also of cast iron, which is carried back and forth by a ⅝-inch steel screw. Both jaws are fitted with steel faces and the sliding jaw extends through a slot one inch wide in the body of the vise. The device is mounted upon a swivel base and may be removed for use on a drill press, a shaper or with other machine tools. It may be used for various kinds of work on the automobile. The space between the jaws when fully open is 3⅛ inches. Fair deliveries.


"YANKEE" No. 1993
NORTH BROS. MFG. CO. PHILADA. PA. U.S.A.
"YANKEE" No. 1993

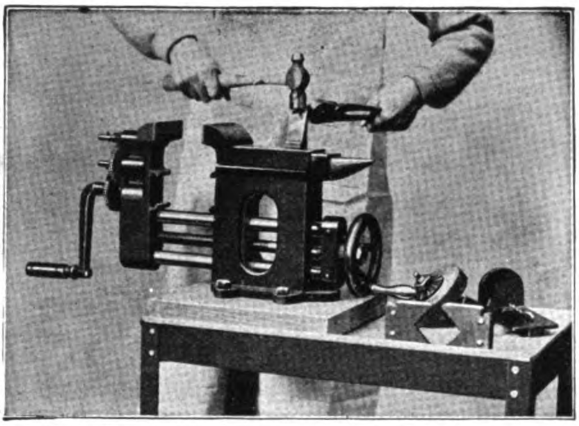
Manufactured by North Bros. Manufacturing Co., Philadelphia, Pa. Price, $7.75.

The A. C. Carbon Proof Spark Plug is a new type of this famous make of plugs and a sectional view is reproduced herewith. This plug was designed primarily to overcome the carbonizing trouble experienced in a certain tractor engine using kerosene as a fuel. The results were so satisfactory that it was decided to put the plug on the market for use in automobile engines. It is made in sizes for the Ford, Overland and Studebaker cars, and in tests on Ford cars covering a period of one year the manufacturers claim that no instance has been found where a plug was removed on account of carbonizing. The porcelain is provided with a number of ribs, having saw tooth edges which attain a sufficiently high degree of heat to burn away the carbon, thereby keeping the edges free from deposits and eliminating any chances of possible short circuit.



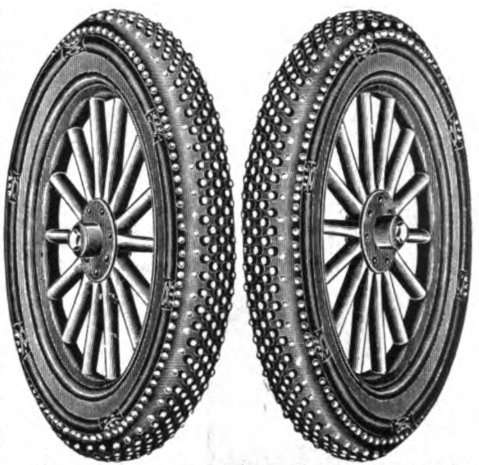
Manufactured by the Champion Ignition Co., Flint, Mich. Write for prices.

The Stewart Handy Worker is, primarily, a vise, but of special construction, so that many tools can be used with it. As a vise the jaws open to 4½ inches and being faced with steel, are practically indestructible. The jaw opening mechanism is operated by a hand wheel and screw, the sliding jaw being supported upon two heavy round pieces of cold rolled steel. The sliding jaw is fitted with a three-gear reduction spindle, with provision for handle upon each gear. The upper spindle extends through the jaw and is fitted with device for holding square shank drills, thus forming a drill press. Fairly good deliveries.



Manufactured by the Chicago Flexible Shaft Co., 12th St. and Central Ave., Chicago, Ill. Price, $16; $18 West of Denver.

Woodworth Steel Studded Treads are made of special water proof, non-stretching, non-cracking leather and are attached over the tire by rings over each side. They are practically puncture proof and protect the tires from all road wear and bruises and their use makes non-skid chains unnecessary for wet or muddy roads. They hug the tires closely so that the latter do not become heated or chafed from friction. When placed over old or worn out casings the latter can be made to give many extra miles of service. They are made in two styles: Center studded, with studs only on the middle portions; full studded, with studs on center and thin head rivets on side.



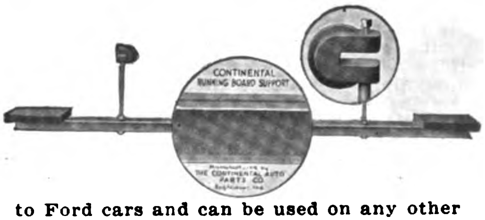
Manufactured by the Woodworth Manufacturing Corp., Niagara Falls, N. Y.

The Beach Automatic Grip Puller can be used for removing either wheels, gears or flywheels, and is so designed that when pressure is applied by turning the screw the jaws are pulled towards the common center, thus making a positive, but automatic grip.

The body of the device is so designed that the jaws are removable, simply by the slipping out of the cotter pins and cross pins, thus permitting the insertion of larger or smaller jaws. Two sets of jaws are furnished; three 7¼-inch jaws which open to 10 inches, and three 12-inch jaws, which open to 18 inches. Fair deliveries.

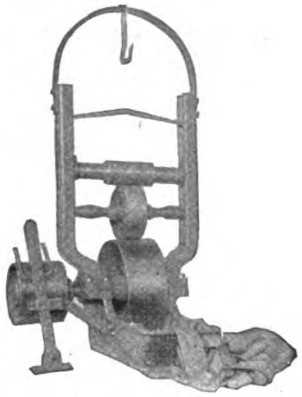
Manufactured by the Greb Co., 202 State St., Boston, Mass. Prices, $25 east of Rockies; $30 west of Rockies. Liberal discount to dealers and jobbers.

The Continental Running Board Support provides additional support to the running board, takes out the rattle and enables the owner to carry batteries, tool boxes and luggage, the weight of which would ordinarily bend the running boards out of shape. This device is a necessity to Ford cars and can be used on any other car or on trucks. Can be attached in a few minutes without drilling holes. It will fit any width and height of frame, being I beam construction, with rods double nutted. Weight, 10 pounds.


CONTINENTAL RUNNING BOARD SUPPORT
THE CONTINENTAL AUTO PARTS CO.

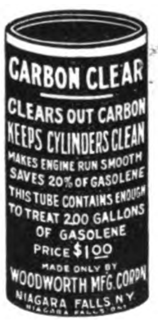
Manufactured by the Continental Auto Parts Co., Knightstown, Ind. Price $2.75.

The Akron-Williams Rag Roller meets a demand from tire factories and large repair shops. It affords greater accuracy and speed in unwinding the wrappings around inner tubes after curing. The mandrel and tube are placed before the rag roller, with loose end of rag in contact with roller, then the power is applied and the rag quickly rolled off the mandrel and on to roller. The rag may be removed with ease after lifting the small rod up to hook at the top. This new roller takes up very little space and may be installed on a bench or any other convenient place near the machine for wrapping tubes. The price is much less than the old style rag rollers and it is being adapted by many shops.



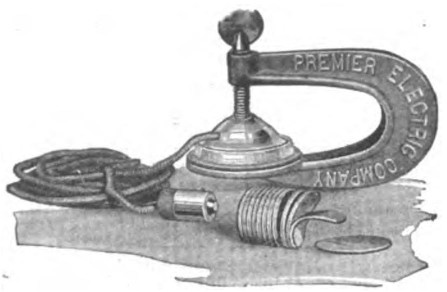
Manufactured by the Williams Foundry and Machine Co., Akron, O. Write for prices and literature.

Woodworth Carbon-Clear is a powder that is dissolved in the gasoline and which the makers claim, results in the elimination of carbon deposits from the cylinders and prevents further accumulations. One teaspoonful of the powder is used to five gallons of gasoline and one tube contains 40 teaspoonfuls or enough to treat 200 gallons. It is claimed that this amount of gasoline will give as much as 250 gallons when treated with Carbon-Clear, which contains no acid, ether, alcohol or other ingredients that will clog the carburetor or harm the motor. It can also be used in kerosene or distillate.



Manufactured by the Woodworth Manufacturing Corporation, Niagara Falls, N. Y. Price, $1 per tube.

The Premier "Its-It" Vulcanizer is one of the simplest devices for the purpose on the market and has nothing on it that is liable to become disarranged or to get out of order, there being only two parts. The heating disc has a long, flexible cord and plug attached to fit any light socket on the car and is fixed in a clamp to hold it in position. The operator simply connects with light socket; places tube in position with patch; switches on current and shuts it off in ten minutes when the vulcanization is thoroughly completed. Weather conditions have no effect upon its operation, having no exposed flame and no "extras" have to be carried to provide the heat. "Its-It" is furnished complete with clamp, heating unit, flexible cord and plug, and 12 patches all packed in carton with full directions. It is made for six and 12-volt currents, the six-volt type being standard. When ordering voltage required and whether single or double contact Ediswan (push and turn) connecting plug is desired should be specified. Immediate deliveries.



Manufactured by the Premier Electric Co., 4032-4042 Ravenswood Ave. Chicago, Ill. Price, $1.50.

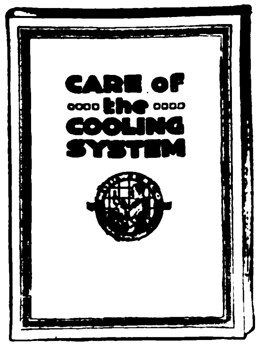
Blaxshine is jet black and of excellent covering quality, producing a black, durable finish with a shining surface like a new car fresh from the factory. The makers claim that it will stand up under any degree of heat, being especially adapted for re-enameling hoods, radiators and metal running boards. It can be put on by anyone after the car is cleaned and the enamel will dry during the night, leaving the car ready for use the next day. The package includes Blaxshine for one car, fine vulcanized brush, painter's cup, mineral wood, sandpaper and your personal monogram in gold shipped by post in corrugated paper.

BLAXSHINE
AUTO ENAMEL

Manufactured by the Twin City Varnish Co., 208 N. Wabash Ave., Chicago, Ill. Price, $2.85.

CARE OF THE COOLING SYSTEM.

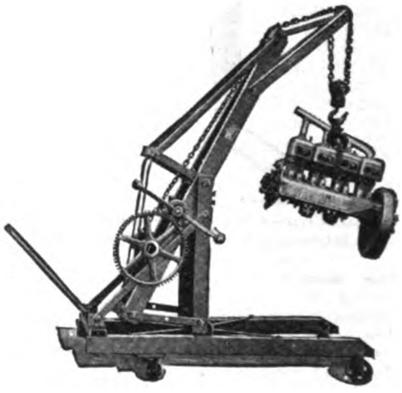
The average motorist spends little time in trying to maintain the running efficiency of his car. This is especially true in caring for the cooling system, which is more important than the average motorist thinks, yet it is generally neglected. If the cooling system is not kept clean and free from leaks it impedes the efficiency of the engine and increases its cost of operation.



The Northwestern Chemical Co. of Marietta, O., makers of the Norwesco line of "Chemically Correct" automotive equipment, have issued a 20-page booklet entitled "Care of the Cooling System."

This booklet is illustrated and conforms to its title, giving the motorist many practical suggestions and valuable information which will assist him in giving proper care to the cooling system. A copy of this booklet can be secured, postpaid, by writing the Northwestern Chemical Co., Marietta, O.

The Manley General Utility Garage Crane comines a half dozen different tools into one and may be used for a hundred different purposes in the garage and outside on the road. It can be mounted on a truck, chassis or service wagon for use as a general wrecking crane, or if no truck is available it may be taken apart and placed in a touring car and at the scene of the wreck may be set up in five minutes by two men. It takes up little room when in use. As a portable floor crane it will lift the front and rear ends of automobiles or transport any piece such as the engine, transmission, etc., on its own wheels anywhere. Its capacity as a floor crane is 1½ tons; as a wrecking crane, two tons.



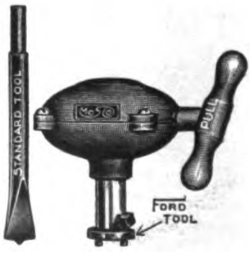
Manufactured by the United Engine and Manufacturing Co., Hanover, Pa. Write for prices and literature.

Eureka Grinding Compound is made to be safely used on any gasoline engine and the choice of three grades is given: Fine, medium or coarse. It is also put up in one-pound cans, which are of the compression type, absolutely air tight.

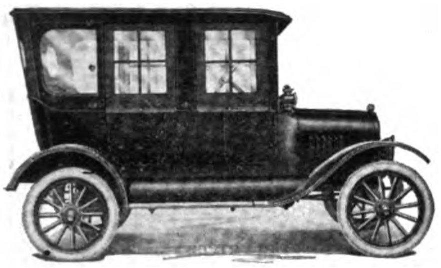
ONE POUND
EUREKA
VALVE GRINDING
TRADE MARK
COMPOUND
MFR'D BY
AUTO EQUIPMENT CO
32 HOLLYWOOD AVE.
EAST ORANGE, N.J.
EUREKA
VALVE GRINDING COMPOUND

Distributed by J. H. Faw, Inc., 37 Warren St., New York City. Write for prices.

The Mosco Valve Grinder works on an extremely simple principle. As the larger part of the grinder is held in place the handle at the side, which is attached to a chain coiled on a pulley inside the casing, is pulled slightly. The motion imparts a rotating motion to the valve tool and the makers claim a noticeable increase in valve grinding time. The device is fitted with two tools, one standard, the other for Ford valves.



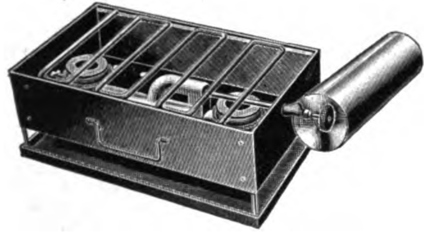
Manufactured by Motor Specialties Co., Waltham, Mass. Price, $2.



Hercules Tops for Fords are always prepared for any kind of weather. All the materials used are carefully selected and well seasoned. The top is covered and the curtains made out of 34 ounce tan back auto rubber. Skeleton type top with natural wood bows. The rear side window is stationary and is fitted with double strength glass. The curtains above the doors roll up, working on a patented roller device and can instantly be raised or lowered. The centre metal posts on either side are attached to the Ford top irons and locked on inside of top and can be removed in about two minutes. These posts can be carried under the seats. The net weight of the touring top when crated is 200 pounds.

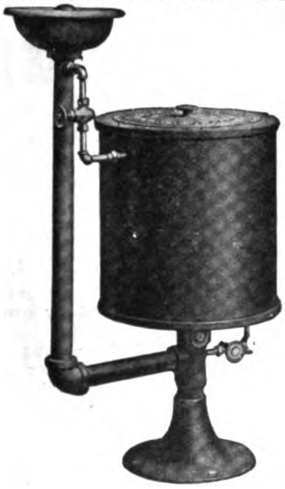
Manufactured by the Hercules Buggy Co., Evansville, Ind. Write for prices and literature.

The American Folding Camp Stove is just the thing for the camping or touring trip. It is efficient and dependable. Equipped with two powerful burners it uses gasoline, burning equally well outdoors as indoors. Weighing eight pounds its size folded is 3½x8x14 inches. It is simple and easy to operate, as there is nothing to set up or assemble. It can also be supplied with heating drum. Good deliveries.



Manufactured by the American Gas Machine Co., Albert Lea, Minn. Write for prices and literature.

Bubbling Fountains may be attached to the municipal water supply in any garage and they are made in a number of styles, plain or ice cooled. The wise garage man looks to the comfort of his employees for he realizes that as long as they are satisfied they will do their best work for him. The illustration shows style number 604, which is arranged to take 75 pounds of ice.

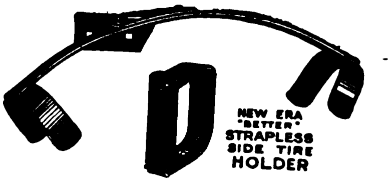


Manufactured by the Manufacturing Equipment and Engineering Co., Framingham, Mass. Write for prices and literature.

Rusco Brake Lining is manufactured by specially constructed machinery. The basis is selected long fiber pure asbestos, expertly interwoven with tempered brass wire. No cotton or copper filling is used. This makes an extremely durable, but soft and flexible fabric of uniform quality throughout. A secret compound is used to permeate the brake lining and render it impervious to water, oil, heat and dirt.

Manufactured by the Russell Manufacturing Co., Middletown, Conn. Write for prices and literature.

The New Era "Better" Strapless Tire Holder is an improvement over others of similar type. The construction is steel throughout with no cast parts to break and no straps to wear out or be lost. The locking device is part of the holder. No chains or cables are necessary to lock casing in place, to rattle or get lost. The tire supports are part of the holder and no unsightly straps are needed to support the tire, wear it out or permit it to be stolen. It is easy to slip the tire in place and push into position, the whole operation done in less time then it takes to fasten straps. Self-expanding, carrying rim furnished where demountable rims are not used. It is quoted as No. 302 in appended price list.

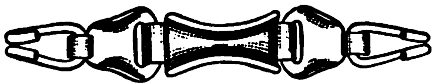


Manufactured by the New Era Spring and Specialty Co., Grand Rapids, Mich.

No. 300 single	**$2.00**
No. 301 double	**$3.00**
No. 302 carrying rim	**$1.50**

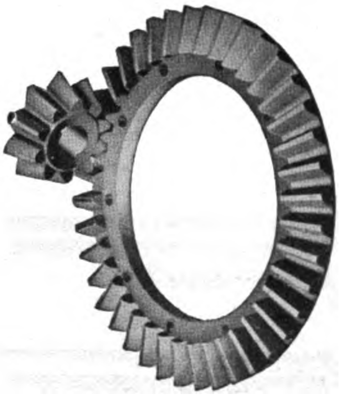
West of Denver add 10 per cent.

Woodworth Kant-Skid Cross Chains are designed for use with the Weed type chains and are so made as to present a perfectly smooth rounded surface to the tire that does not injure the rubber and presents the sharp edges of the metal towards the road so as to give excellent traction to the wheels.



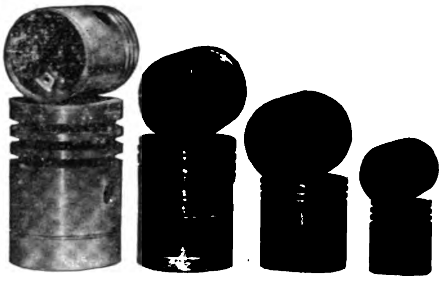
Manufactured by the Woodworth Manufacturing Corporation, Niagara Falls, N. Y. Prices: 3 or 3½ inch, 15 cents each; 4 or 4½ inch, 18 cents each; 5 or 5½ inch, 22 cents each.

The Krom-Nik Anderson Special Gear for Ford cars offers the lowest possible ratio for hauling and hill climbing. It has a special type of tooth unlike any other and with an additional half pound in weight it gives remarkable strength and efficiency. The 4.2 to 1 ratio offers the lowest gear reduction possible in a Ford axle. The special racing 3 to 1 gears manufactured by this company are designed for owners who want extremely high speed for use in racing cars.



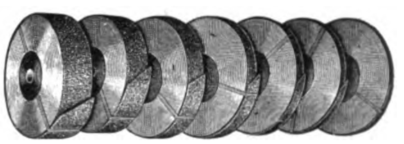
Manufactured by the F. H. & S. Co., Chicago, Ill. Price, $15.

The Storm Light Weight Pistons are made of a special close grained semi-steel metal. They are made as light as is practical, often as much as 50 per cent. lighter than the original pistons furnished by the manufacturer. Yoke shaped reinforcements are used to provide ample strength combined with lightness. This light weight is a most desirable feature, reducing vibration, stress and wear. They are finished to size with extreme accuracy, can be fitted closely and therefore are very durable. A motor provided with these pistons will give the longest and most economical service.



Manufactured by the Storm Manufacturing Co., Thompson, Ia. Write for prices and literature.

Aloxite Cloth, which is rapidly succeeding the old time emery cloth for general machine shop work, is put up in economy rolls as well as in reams, sheets and rolls.



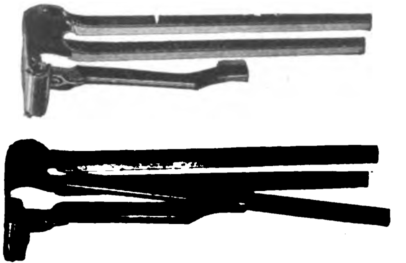
The cloth is cut in ½, ¾, 1, 1½, 2 and 2½ inch widths, snugly wound upon spools. The operator simply cuts off a piece in any length or width he desires. The rolls are 50 yards long and are made with any degree of grit. Aloxite Cloth is also furnished in 9x11 inch sheets.

Manufactured by the Carborundum Co., Niagara Falls, N. Y.

Harvey Springs have been so well proven by actual experience that there is absolutely no question in the minds of garagemen and car owners as to their pre-eminence in strength, resiliency, endurance and all around dependability. There is a Harvey jobber with a large stock of Harvey springs on hand in every state in the Union, and it is his business to see that your order is filled and shipped by the fastest route whenever you call.

Harvey Spring and Forging Co., Racine, Wis. Write for copy of Spring Book, giving valuable information.

The Auto-Scope Windshield Wiper cleans both sides of the glass at the same operation. The inside wiper is made of heavy absorbent felt, yet not so heavy as to cause undue friction and drag. The outside wiper is made of the best grade squeegee rubber, guaranteed not to scratch the glass. The whole device may be placed either at the top or between the glass sections of the shield, since it requires but 1/16 of an inch clearance.



It is made in three models: The Auto-Scope Junior with no rear wiping member, finished in black enamel; Auto-Scope No. 1 in oxidized finish for both front and rear of glass, and the Auto-Scope No. 2, designed similar to No. 1, but made of steel, heavily coppered and nickel plated. Deliveries in 30 days.

Manufactured by the White Lock Co., 1241 Michigan Ave., Chicago, Ill. Price, Junior, $1; No. 1, $1.50; No. 2, $2.

Evr-Lastin Gear Compound is a gear and chain lubricant that is the result of many years experience in developing lubricants. It is composed of five products that make a strictly distinct lubricant for the lubrication of transmission and differential, bevel, spur or worm gears. It is dark in color and very tenacious and it clings to the surface of the metal under heavy pressure. The makers claim that it is only necessary to pour into the gear housing one-third the quantity of this lubricant that is ordinarily required and thus a large saving is accomplished. Furthermore, it is claimed to last pound for pound, three or four times as long as the ordinary transmission oil or grease. Prompt delivery from stock.

EVR-LASTIN
GEAR COMPOUND
TRADE-MARK
Evr-Lastin
Gear Compound

Manufactured by the Imperial Oil Co., St. Louis, Mo. Prices: 5-pound tins, $1.50; 10-pound tins, $2.75; 25-pound tins, $6.50; 50-pound tins, $12; ½ barrel (wood), per pound, 22 cents; barrels (wood), per pound, 20 cents; ½ barrel (steel), per pound, 24 cents; barrels (steel), per pound, 22 cents. Special discounts.

Eagleine Motor Oils and Gear Oil. Lubricating oil for internal combustion engines must be of the proper consistency, so that it flows freely and holds its viscosity, with a certain percentage of the resistance particles of the natural oil extracted and yet not too great a percentage of the lubricating base of the natural mineral oil removed, which gives it its quality for efficient lubrication. To ascertain the proper proportions in the refining of as near perfect a lubricant for gasoline engines as possible requires long years of experience. Eagleine motor oils were put through the most exhaustive tests for a period of 20 years and now have reached the zenith of perfection. They are refined from the natural mineral oil and contain no animal or vegetable fats that tend to decompose into glycerol and acids, which lower the lubricating efficiency. Eagleine gear oil is especially compounded to the exact consistency for efficient lubrication of transmission and differential gears and its use has shown that there is less wear on the gears and thereby upkeep expense is reduced to the minimum.

(REGISTERED)
EAGLEINE

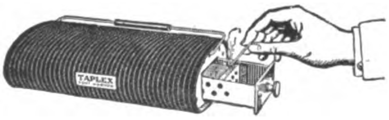
Eagleine motor oils and gear oil are put up in the company's trade marked containers that serve the purpose of cleanliness and convenience in use, as well as assuring the customers no spurious substitutes.

Eagleine motor oils and gear oil are prepared and marketed by Eagle Oil and Supply Co., 44-5-6 India St., Boston, Mass.

The "New Britain" All-Steel Bench Drawer is designed to meet the needs of those whose requirements do not demand the wooden back, bottom and front. A hem of triple thickness around the upper edge and the welding of all joints combine to produce a drawer of remarkable strength and durability. With the common type of bench now almost universally used, having a thinner back plank than front one, an open space is left between the back plank and the ordinary type of drawer invites pilfering. In this drawer, however, a solid sheet metal top, prohibits any tampering at the rear and prevents a block or a lockout through wedging of the contents. In addition it serves to exclude any oil or water that might by accident soak through from above. The slideways are integral with the top and give to the drawer a smooth, free movement without binding or a cramping tendency. The handle is of generous size, with a shape of special design, which affords a very comfortable hand hold. A cylinder lock of good grade with two individual keys is provided. Master keying may be had if desired at cost. The drawer is sold as a unit, requiring no fitting, easily installed and quickly inserted without any cutting of bench. Weight in shipping order 40 pounds. Prompt deliveries.

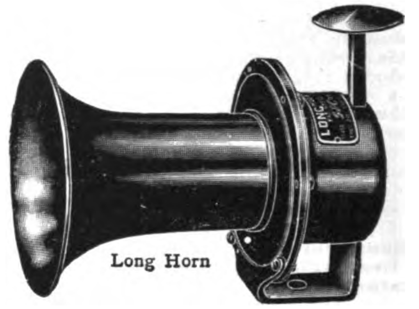
Manufactured by the New Britain Machine Co., New Britain, Conn. Price, $7.50.

The Taplex Foot Warmer is for use in the automobile, camp, porch and for all other outdoor uses. On the coldest days it gives one that full measure of comfort and protection which makes the automobile ride a pleasure. It is lighted with a match and the fuel burns without flame or smoke, thus making it absolutely safe. The case is made of indestructible steel with nickel plated ends and a double asbestos lining.



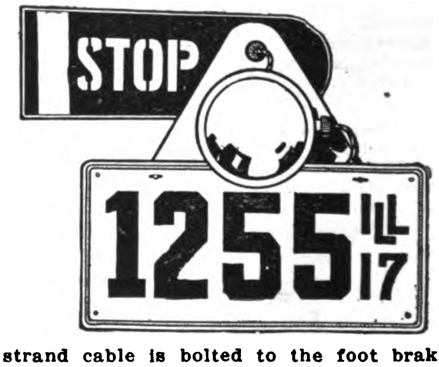
Manufactured by the Taplex Corporation, 47 West 34th St., New York City, N. Y. Weight 5 pounds. No. 14, $5; No. 20, $7.50. Extra fuel, 12 bricks to a box, $1.

The Long Horn shown in the cut is both ornamental and durable. The contact between the diaphragm and the rotor is made by steel rollers inserted in the rotor, which is of hardened steel. Their action on the diaphragm gives a rolling tone peculiar to the Long Horn. The volume of sound may be varied from a long, low rumble to a loud, sonorous crash, and continues after power impulses have ceased. It is finished in three styles: All black, black and nickel and black and brass. Total length, nine inches. Length of bell, 6¼ inches. Fair deliveries.



Made by Edward A. Cassidy Co., Inc., 280 Madison Ave., New York City. Model 3, $3.50.

The Comer Auto-Stop Signal, an invention by Mr. G. Comer, a conductor on the Illinois Central, understanding the efficiency and positive dependency of the semaphore signal of railroad block system, conceived the idea that such a device properly operated and installed upon a motor car would solve the "safety first" problem and especially eliminate all possibility of not signaling if operated automatically. The device is attached to the tail light post or license bracket and a coil cable with strand pull cable passing through a lever attached by six screws to the floor board of the tonneau under the car, from the lever bracket a heavy strand cable is bolted to the foot brake rod by means of a lock bolt. The slightest pressure on the service foot brake takes up the slack and before the brake bands tighten up to the point of slowing the car down the red semaphore arm raises to a horizontal position, thereby immediately and automatically giving a signal to the man behind. Provision for night operation is provided by an electrical bulb (two candle power) installed within the housing of the semaphore arm and by means of a contact screw inside the axle of the semaphore when coming to a horizontal position automatically makes contact and lights, signaling the word "Stop" brilliantly illuminated to the man behind and which can be seen and read for 300 feet. Immediate delivery.



Eastern Sales Agents, Bucyous-Eastern Sales Co., 201 Devonshire St., Boston. Manufacturer's Agents, Wonder Sales Co., 616 Hippodrome Bldg., Cleveland, O. Price, $15.

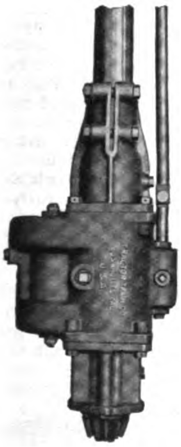
The Advance Automobile Accessories Corporation is introducing a transmission lining for Ford cars that can instantly be identified by a white stripe running along the center. In a folder headed "Another Triumph of America's Genius," this lining is described as setting a new standard in transmission fabric quality. A treatment has been worked out by the chemists of the Advance institution which resists and neutralizes the action of hot oil on cotton fabric. Moreover, a mechanical method of applying the treatment to the woven fabric also has been successfully developed, with the result that White Stripe solution thoroughly saturates every fiber of the lining, making it retain its heat and oil resisting qualities longer than any lining now on the market.

WEST OF ROCKIES $2.25 Per Set
IN CANADA $3.00 Per Set
$2.00 PER SET
ADVANCE
White Stripe
TRANSMISSION LINING for FORD CARS
White Stripe
TRANSMISSION LINING FORD CARS

White Stripe Lining is to be marketed both in rolls and strips of three to the box. The retail price per box of three, east of the Rockies is $2, and from the roll the retail price is 32 cents per foot.

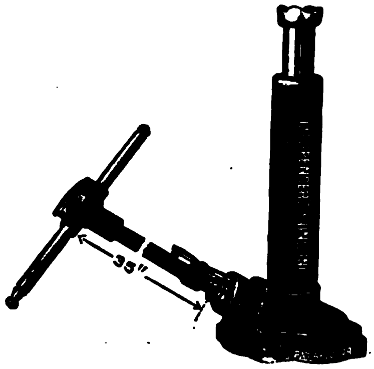
Manufactured by the Advance Automobile Accessories Corporation, 56 E. Randolph St., Chicago. Write for prices and literature.

The Moore Transmission is merely a matter of increased leverage; as, for instance, it is easier for a man to lift a given weight with a lever 20 feet long than it is with a lever 10 feet in length. Due to this steady flow of power the strain on the engine mechanism is very much lessened because the impulse of the engine is blended thoroughly before the power is transmitted to the back wheel.



As all parts of the transmission are properly designed and machined there is no difficulty in installing. Roller bearings are used throughout and are easily obtainable for replacement purposes and are the bearings which have been found most satisfactory for Fords. This transmission enables the driver to adapt his car to any kind of road conditions from paved streets to mud holes, deep sand and hills.

Manufactured by the Tractor Train Co., 1346 Wall St., Los Angeles, Cal. Write for prices and literature.



The Acme Automobile Jack may be operated from the end of the longest car without soiling the clothes, the outstanding features being ball thrust bearings and a large base area. All working parts are enclosed in a dirt and grit proof case and they run in heavy grease. The lift screw is ⅞ of an inch in diameter.

Manufactured by I. S. Spencer's Sons, Inc., Guilford, Conn. Price $6.50.

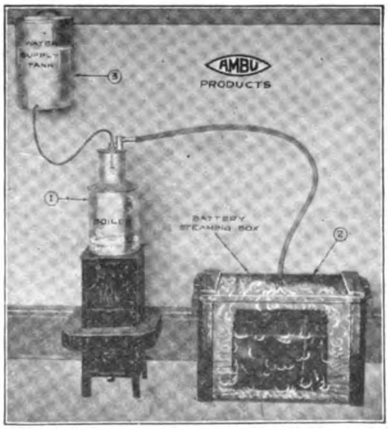
Carborundum Valve Grinding Compound is one of the standard products proved by time. This product is made to be safely used in any gasoline engine and the choice of three grades is given, coarse, medium or fine. It is put up in from one to five-pound cans and is growing more popular with discriminating manufacturers, engineers, garage dealers and repair men.

COARSE
CARBORUNDUM
VALVE GRINDING COMPOUND
MANUFACTURED BY THE CARBORUNDUM COMPANY NIAGARA FALLS, N.Y.

Manufactured by the Carborundum Co., Niagara Falls, N. Y. One pound can, $1.25. Five-pound can, $5.

The American Bureau of Engineering has just put a product on the market called the Peers Ambu Battery Steamer, an apparatus for softening the sealing compound on starting and lighting batteries.

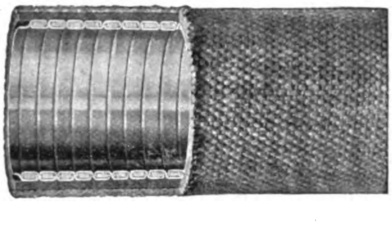
The device consists of three parts: A steam generator, a steam box and a water supply tank. When a battery is to be opened the connectors are first removed and the battery then placed in the steaming box and steam passed into the box for about 15 minutes. This makes the sealing compound soft, so that it can be removed readily with the point of a screw driver, or putty knife, the entire operation of opening the battery being performed within five minutes after it is removed from the steaming box.



The generator or boiler is made of heavy galvanized iron, the water in this unit being automatically kept to a low level so that steam is generated very quickly.

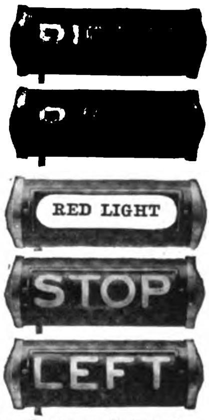
Manufactured by American Bureau of Engineering, 1018 Wabash Ave., Chicago, Ill. Write for prices.

"Triplexd" Gasoline Hose uses the highest quality hose cord in its fabric cover, which is woven on with a circular loom, laying the fabric on the rubber under a pressure of 330 pounds to the square inch, so that it bites right into the rubber, which is pressed still closer around the metal lining. This metal lining, the makers claim, is the most flexible construction ever devised. The steel strip is made of best quality slow-rolled metal of accurate, uniform thickness and heavily electro galvanized, forming a gasoline hose that is non-leakable and durable.



Manufactured by the Metal Hose and Tubing Co., Brooklyn, N. Y. Write for prices and literature.

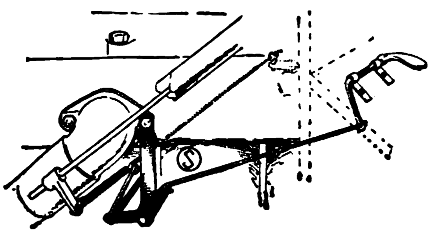
The Roedding Signal Tail Light is housed in a cylindrical shaped metal case, 10 inches by four inches. The makers claim it to be the simplest of the many signaling devices upon the market. Its operation is controlled by a toggle button mounted upon the steering column. When the button is pressed in the central position the horn is blown. When pushed to the right the letters "right" appear, two inches in height on a roller, which is inside the water proof case. When pressed to the left the letters "left" appear and other positions signal "stop" and "back," showing accurately the direction the driver intends to take.



Sole distributor, K. G. Barkoot, Detroit, Mich. Price, $18.

Woodworth Lock Chains are ideally designed for locking spare tires to the holders or for locking the front wheel to the frame to prevent the car from being stolen. They are steel chains covered to prevent chafing the paint and are fitted with locks for connecting the ends. Prompt deliveries.

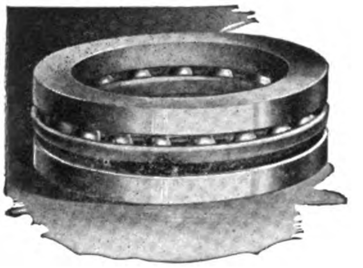
Manufactured by the Woodworth Manufacturing Corporation, Niagara Falls, N. Y. Prices: Leather covered, case hardened, with high grade lock, $2.50 to $2.75; same without lock, $1.10 to $1.25; imitation leather covered steel chain with high grade lock, $2 to $2.25; same with cheaper lock, $1.40 to $1.65; same without lock, 45 to 50 cents; black coated drill covered steel chains with good cheap lock, 65 to 75 cents; same without lock, 35 to 45 cents.



The Stewart Foot Accelerator is designed for the Ford car and can be actuated with a minimum amount of effort. This device is extremely simple to apply and requires no alterations in the present machine, except the boring of a three-quarter inch hole for admitting the foot lever. The accelerator may be placed in any convenient place on the floor boards or dash and with the exception of the pedal all parts are located out of sight beneath the hood.

Manufactured by F. W. Stewart, 1402 Michigan Ave., Chicago, Ill. Write for prices.

Roll-Rite Ball Bearings for Fords and Chevrolets automatically take up the side grinding or side thrust movement and dissipate it into a moving anti-friction ball bearing, and by so doing not only prevent side grinding, but allow the present bearings to continue to function properly. A set contains four complete bearings, two of which fit perfectly into each front wheel in conjunction with the present bearings, thus giving four bearings to each wheel, and are in contact with the present bearings, only a felt washer and metal container being removed. The balls in this bearing are held in place by rivetless metal retainers, causing a perfect alignment, preventing crowding together, and allowing each ball to operate independently of the others.

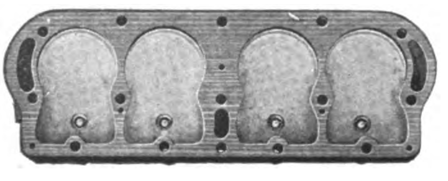


Manufactured by the Roll-Rite Manufacturing Co., Charleston, S. C. Write for prices and literature.

The Gordon Sectional Overlap Lazyback Seat Cover makes a good fit under all conditions. The section to cover the back of the seat overlaps on each of the arm rest sections and is greater or less as the case may be. A misfit is impossible the makers claim, the lacing at the bottom preventing wrinkles, as should one appear the lacing is again adjusted to the proper tension. The overlap relieves all strain on fabric and fastening because of its flexibility permitting each section of the cover to conform to the movements of the upholstery without strain.

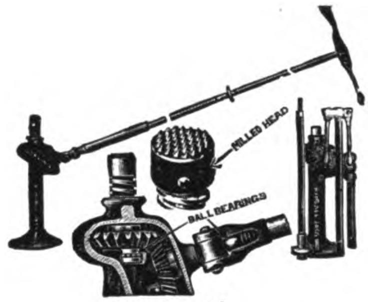
Manufactured by the J. P. Gordon Co., Columbus, O. Write for prices, samples and literature.

Never-Leak Gaskets combine two standard cylinder gaskets made of copper with a layer of asbestos fabric between the surfaces. These gaskets are carefully made and reinforced at the vital points. They may be obtained for a great number of standard cars and are cut to fit, requiring no alterations. The same firm also manufactures gaskets for practically every part of the engine where packings are necessary.



Manufactured by the Fitzgerald Manufacturing Co., Torrington, Conn. Write for catalogue and prices.

The Kimball Ball Bearing Heavy Type Jack eliminates dirty, hard jack work. Its long handle turns and raises or lowers the heaviest car with ease. Its rigid handle that is swung from the top, not the bottom, prevents it from falling over while being placed beneath the car and all the raising or lowering is done at the end of the long handle. The milled head of hardened steel on the top will hold anywhere, on any bolt, spring or clip. The ball bearings carry the lift and thrust, reducing the friction and making the jack work easily. There is nothing to get out of order and the entire jack folds up into a small bag. Prompt delivery.

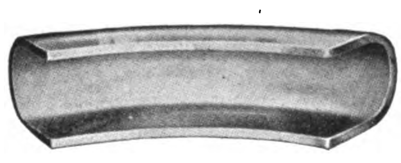


Kimball Jack

Distributed by Edward A. Cassidy Co., Inc., Madison Ave., at 40th St., New York City, N. Y. Write for prices and literature.

The Williams Solid Reducing Shell enables the repair man to use larger sectional molds for vulcanizing repairs on small casings, whenever the small molds are busy, by lifting a shell into a large mold.

The shells being machine finished to a minute degree of accuracy and being in perfect contact at all points, as good a cure is secured as by direct contact of tire with mold.



These shells enable the repair man who has various sizes of molds to double the amount of vulcanizing on small size tires.

Manufactured by the Williams Foundry and Machine Co., Akron, O. Write for prices and literature.

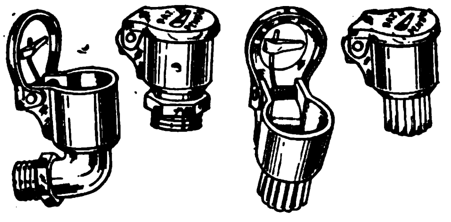
The Howe Searchlight Display Stand shown in the accompanying illustration is a familiar sight in the stores of the many dealers that handle the Howe products. It is handsomely lithographed in red, white, blue, gray and black, and provides space to show styles of the regular Howe Searchlights No. 9 and No. 5, retail price $6.50 and $5.50 respectively, and also the Howe Junior, a single shell, popular priced Howe model selling at $4.50. On this stand are displayed also six of the seven clamps by which the bracket of the Howe is attached to any windshield frame, round, square or oval, with a perfect grip.

HOWE Searchlight
The Lamp With The Wonderful Bracket
THE WINDSHIELD SPOTLIGHT OF QUALITY

This display stand for counter or window display, together with a set of windshield clamps, is furnished free to Howe dealers. This practical connection between national advertising and the retail dealer has resulted in a great deal of interest and to it a large number of sales have been directly traced.

Manufactured by the Howe Manufacturing Co, Chicago, Ill.

Rex All Enclosed Oil Cups have many special features and are designed to meet all needs and incidentally overcome the many objections to the old style cups. They are made with a one-piece shell and easily opened and self-closing cap or lid, which is actuated by a spring, which is enclosed without obstructing the bore. This spring being constantly lubricated it will not rust or stick. The cups are dust as well as rain proof and may be painted without affecting the mechanism or action. They are made in all sizes and are guaranteed as to construction and action.



Manufactured by Frank X. Devlin, 100 Warren Ave., East, Detroit, Mich. Write for literature and prices.

Simplex Grease Gun loads and ejects grease in 30 seconds. It is simple to remove the lower cap, insert the gun in the grease and pull up the plunger. Slip off the outer sleeve and the gun comes out as clean as a whistle, all the superfluous grease being left on the outer sleeve. The gun itself can be handled without the least danger of soiling hands or clothing. Deliveries in 20 days.

Distributed by the Hinrichs Manufacturing Co., Chicago, Ill. Price, $2.50.

The Dave Buick Carburetor uses a principal of aerodynamics in securing an automatically controlled mixture of gasoline and air at all motor speeds and loads. When an aeroplane is flying through the air the inclined bottom surfaces of the wings compress the air sufficiently to carry the weight of the aeroplane. If the speed of the aeroplane is increased and wing position left the same, the air will be still more compressed on account of the higher speed and the aeroplane will begin to rise until the compression of the air balances the weight of the aeroplane.

Only two moving parts affect the mixture. One is shutter (PS), which is hinged at the bottom so it can swing freely around shaft (RH). The tail end of this shutter carries the gasoline metering piston (PP), which again slides very freely up and down in the carburetor casting.

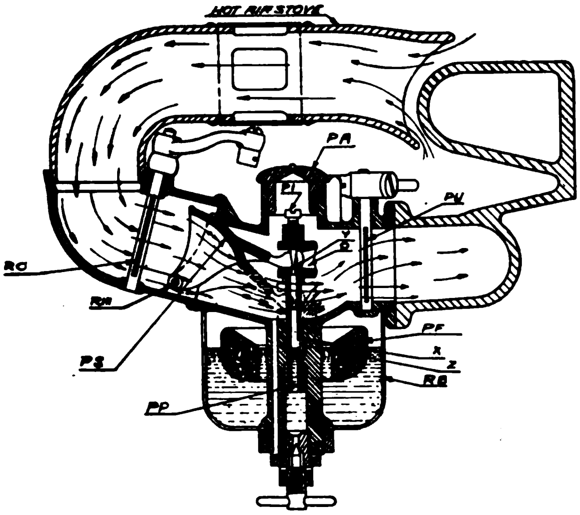


Diagram of the Various Working Parts of the Dave Buick Carburetor.

This piston is flattened off on the side nearest to the throttle in the form of a taper. The deep end of the taper is near the bottom and dies out at the top. These parts are lifted by the rush of incoming air and returned by gravity force. As both of these forces never change it assures a correct mixture at all times, climates and weather conditions.

The air entering the carburetor in front of the choke valve (RC) strikes the bottom of the inclined surface of the shutter (PS) and exerts a lifting force on it the same way as on an aeroplane wing. As the shutter rises it lifts also the piston until the weight of the piston and the lifting force of the air rushing past balance each other and the shutter remains stationary, floating in the air. As the air flows past the piston it creates a vacuum on the tapered side and draws the gasoline from the carburetor bowl through the hole (Z) in the taper opening into the carburetor. There it is thoroughly mixed with the air and drawn into the cylinder.

By opening the throttle still further a greater quantity of air is sucked into the cylinder, which results in an increased lifting force on the shutter (PS). The shutter will rise again and lift the piston until the weight of the piston and the lifting force balance each other again. As the piston is higher up now the opening for gasoline on the tapered side is larger, permitting more gasoline to mix with the increased amount of air flowing past. If the throttle is closed less air is drawn in the cylinder, which decreases the lifting force on the shutter. The shutter will drop down until the lifting force balances the weight of piston. This lower position of the piston will close up the taper opening just enough to let only the correct amount of gasoline mix with this smaller quantity of air.

The shutter and the piston are in a position as shown by the dotted lines. When the motor is at rest in this position the piston shuts off the taper opening entirely. When the motor is idling the lifting force of the air is not strong enough to lift the shutter and the air has to pass through the opening in the head of the piston. When passing the jet (Y) below the adjusting screw (PI) it draws gasoline through this jet and mixes sufficient gasoline with the air to make the correct mixture.

The gasoline and air mixture will only change by decreasing or increasing the taper on the piston. As this taper is determined experimentally for each motor, the mixture will have to stay correct as long as the carburetor is used on the same motor.

The only adjustment is for idling the motor. When the motor is idling the cap (PA) above the piston is slowly lifted until a little air is admitted. The motor will either stop or run faster. In the first case the idling adjustment is correct and if the motor still runs too fast the throttle adjustment should be changed to close up the throttle still more. In the second case the gasoline mixture is too rich and the adjusting screw (PI) should be turned down until the motor runs evenly. Turn the screw (PI) very slowly, about 1/16 of a turn at a time, as this adjustment is very sensitive. The cap (PA) has to be replaced for each trial.

Cold mornings when the motor is cold and the air cannot be preheated at the exhaust manifold, the temperature is too low to vaporize all the gasoline that coms out of the bowl. The result is that the mixture is too lean to be fired by the spark plug. To overcome this difficulty the choke valve (RC), which is connected with the dash, is partially or entirely closed up, increasing the suction on the gasoline and at the same time reducing the amount of air drawn through the carburetor. This gives us extremely rich mixture in which sufficient gasoline is vaporized and mixed with the air to be fired by the spark plug. As soon as motor starts the choke valve (RC) is gradually opened until the motor is thoroughly warmed up. It is run with the choke valve (RC) as far open as possible as this position gives the best economy.

Manufactured by the Jackson Carburetor Co., Jackson, Mich. Write for prices and literature.

SHALER VULCANIZER REPAIRS 200 TUBES AND 12 CASINGS A DAY.

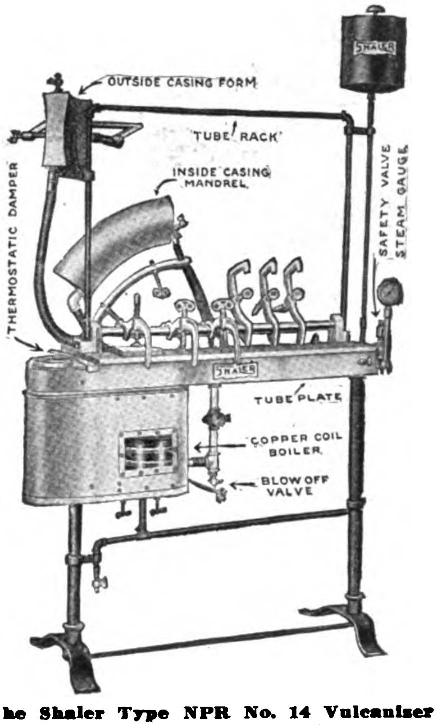
Everyone in the automobile business admits the possibilities there are for big profits in tire repairing. Many repair men are getting these profits. Others are postponing their start in tire repairing because they have received the impression somewhere that tire repairing is a mysterious, difficult art to learn, or that the necessary equipment is exceedingly expensive.

Right now is the time to give tire repairing serious consideration. The high cost of tires and the possible scarcity of them is filling motorists with a desire to have repair after repair made until the last possible mile of service has been obtained.

One of the types of tire repair equipment that is especially adaptable for the small garage that wants a simple, inexpensive vulcanizing plant, as well as for the repair shop that demands reliability and large capacity, is the Shaler type NPR No. 41, illustrated herewith. There is ample capacity for handling about 200 tubes and a dozen casings daily. Any type of repair that is practicable with any vulcanizer can be handled, from tube punctures to the largest casing blowouts. By the use of the wrapped tread method, adapted from the method used by most tire manufacturers in making tires, the repair of casings is reduced to the simplest terms. And all sizes and kinds of casings are mended with one set of moulds.

Great economy of repair material is secured by the elimination of cutting away and replacing a section of the tire, as is often done by repair men, and at the same time a stronger repair is made than when the tire is weakened by cutting into sound fabric. A 50 per cent. saving in time of curing is accomplished by heating the tire from inside and outside at the same time.

This vulcanizer is heated by steam generated by a gas or gasoline burner. One of the outstanding, exclusive features is the automatic control of temperature by means of a thermostat. It is impossible to overcure or undercure a tire and no attention need to be given to the vulcanizer while it operates, as the temperature cannot vary from the correct degree. The price is $70, subject to trade discount.



The Shaler Type NPR No. 14 Vulcanizer Handles Any Size Reair.

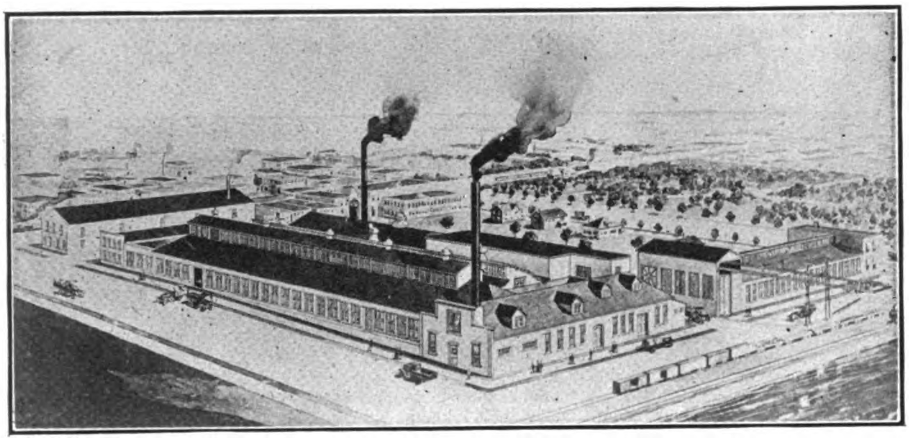
C. A. Shaler Co., Waupun, Wis., also make many other models for repair shop use and a line of motorists' emergency vulcanizers which are among the best selling accessories on the market and are handled by practically every jobber.

Dwight Davis has become assistant general manager for the Ever-Tight Piston Ring Co., St. Louis, Mo., resigning a similar position with the Hyatt Roller Bearing Co. to make this association.

News of the Motor Car Industry In Brief

The Acme Motor Truck Co., Cadillac, Mich., which was established several years ago, has developed rapidly. The company has produced machines built from highest grade standard construction units, its sales and service policies have been sound and satisfactory, and the progression has been consistent with good business principles. The company built its own plant and when this and its facilities were inadequate it acquired the shops and equipment of the Cadillac Machine Co., which increases the floor area of the works to about 120,000 square feet, an addition of about 70 per cent. to the manufacturing space. The company is extremely well prepared for production, and it has adequate financial resources, now having total assets of approximately $900,000, which are sufficient for all requirements.

The second addition made this year to the body building department is practically complete and will shortly be occupied and operating. Since it began the manufacture of bodies the output has increased very rapidly, many buyers having their equipment supplied by the company. The company occupied its new offices early the present month, this department requiring rather more than 9000 square feet of floor space, which is pointed out as an evidence of Acme growth and progress. The company has added to its facilities a small but well equipped printing plant, which will produce all the small printed forms used in its records, and the literature prepared by the advertising department for the use of the sales organization.



Works of the Cadillac Machine Co., Cadillac, Mich., Recently Purchased by and Now Known as No. 2 Plant of the Acme Motor Truck Co.

The Air-O-Flex Automobile Corporation, Detroit, Mich., has located its offices at the factory.

The O. J. Beaudette Co., Pontiac, Mich., has been awarded government orders for two types of transport bodies and for a touring car body. For several weeks past the company has not been in full operation, owing to curtailment of passenger car production. The company are manufacturers of metal motor car bodies.

The Mason Tire and Rubber Co., Kent, O., is manufacturing rubberized raincoats for the army. The company will turn out 1000 coats a day by the first of the year. Additional plant capacity has been leased for the duration of the war.

The Central Machine and Tool Co., Toledo, O., is furnishing war plants with jigs, dies, snap and tolerance gages and special machinery for war work. The company is filling an order for special polishing machinery for a shell plant. Testing machines for shells and dies and reamers for shell cases are made. The president is William F. Pioch and George E. Walters has taken over the management of the company's operations.

The Champion Ignition Co., Flint, Mich., will erect a three-story addition to its plant to cost approximately $50,000.

The Simmons Manufacturing Co., Cleveland, O., has purchased a four-story building containing 28,000 square feet of floor space. The company manufactures repair parts for light trucks and passenger cars.

The Square Turn Tractor Co. has removed its executive offices from Chicago to its factory in Norfolk, Neb. The company will erect several new buildings.

The Herff Motor Corporation, Memphis, Tenn., has taken over the State Automobile Co. The Herff company distributes the Briscoe and Elgin and has branches at Nashville, Tenn.; Little Rock, Ark., and Birmingham, Ala.

The Northern Foundry Co., Marinette, Wis., manufacturers of automobile castings, will double the capacity of its plant. The company has purchased the business and equipment of the Dost Pattern Works, Menominee, Mich. Bruno E. Dost is proprietor of the concern and he has joined the Northern company as pattern works manager. The company specializes in tractor and gas engine castings.

The Auto Body Co., Lansing, Mich., has received a war order for truck bodies amounting to $500,000.

The Anderson Forge and Machine Co., Detroit, Mich., has placed contracts for an addition to its office building and die shop on Jefferson and Conners Creek. War work and other activities has made it necessary to expand the plant.

The Schaefer Rubber Co., Cincinnati, O., has increased its capital stock from $50,000 to $100,000.

The G. A. Schacht Motor Truck Co., Cincinnati, O., is erecting a one-story factory addition, 75 by 250 feet. The new building will be used for assembling.

The Lone Star Motor Co., El Paso, Tex., has taken the state agency for the Lauson tractor and a stock of tractors and repair parts will be maintained at Dallas and Houston, as well as at El Paso. The Lone Star sells cars such as the Packard, Stutz, Hudson and Dodge Brothers. The president is E. Gordon Perry.

The Supreme Motors Corporation, Cleveland, O., will build a plant at Warren, O. The first unit will be built to meet war requirements. When peace comes the company plans to build a complete line of engines. The officers are: President, A. W. Green; vice president and general manager, C. H. Davies; secretary, C. F. Erickson, and treasurer, C. N. Mitchell.

The Cincinnati Auto Specialty Co., Cincinnati, O., has moved into new quarters, where it will have 20,000 square feet of manufacturing space.

A. R. Mosler & Co., New York City, has made a number of changes in its selling force and is now represented by the following men: F. G. Wright, New England; L. G. Falck, New York and Pennsylvania; J. E. Patton, Eastern Pennsylvania, Maryland, Delaware and Virginia; I. W. Becker, South Atlantic coast states; H. H. Meyer, Ohio and Michigan; F. S. Murray, Indiana, Kentucky and Southern Illinois; John Staff, Southwest; C. D. Parr, Nebraska, Kansas and Missouri; E. Gluckauf, Illinois and Northwest; M. L. Monger, Inter-Mountain; I. H. Sollish, New York City and New Jersey.

The Falls Motors Corporation, Sheboygan Falls, Wis., will erect a large addition to the plant. It will consist of a one-story shop addition, 120 by 275 feet, and it is the fourth important extension made within a year's time. The company is devoting most of its time to the manufacture of engines for government trucks and other army purposes.

The Steel Products Co., Detroit, Mich., is building a one-story machine shop 89 by 123 feet, to cost $30,000.

The Bucyrus Tire and Rubber Co., New York City, has leased the plant formerly operated by the Bucyrus Rubber Co. The company will manufacture tires, tubes and other rubber articles. The president and general manager is C. O. Henderson; vice president, Joseph Friedman, and secretary and treasurer, George C. Riley.

And Happenings Among the Parts Makers

The Kissel Motor Car Co., Hartford, Wis., will erect a one-story warehouse building, 50 by 260 feet. The company is devoting practically its entire facilities to the production of F. W. D. trucks for the government.

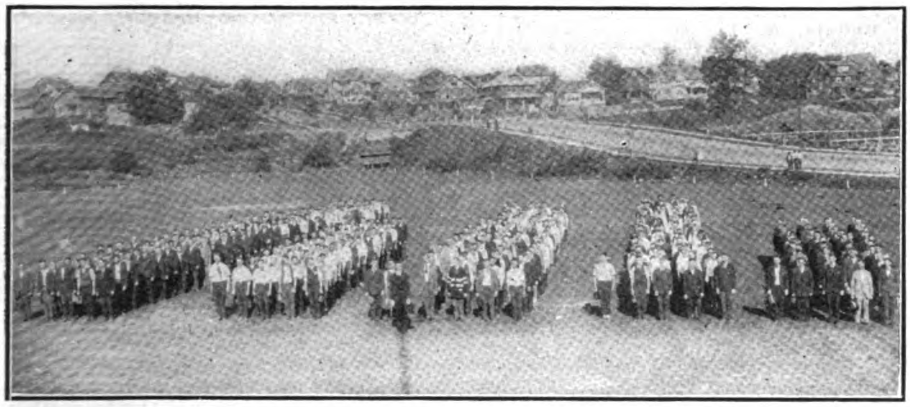
The Detroit Lubricator Co. will erect a one-story shipping room, 104 by 120 feet. It will cost $25,000.

The United States Gear Shift Co., Eau Claire, Wis., has completed its new manufacturing plant. It is four stories high, 80 by 100 feet, and is equipped to manufacture the Laursen hydraulic gear shifting device for motor vehicles. The regular line of work will be undertaken as soon as the war requirements have been filled.

The Allen-Bradley Co., Milwaukee, Wis., will erect a shop addition, 65 by 100 feet, two stories high. It will cost about $40,000. The company manufactures electric controlling apparatus.

The International Steel Products Co., Milwaukee, Wis., has broken ground for the erection of its new and permanent works in Hartford, Wis. The first unit will cost about $30,000. The company manufactures gas engine silencers and other accessories and parts of pressed sheet steel.

The John W. Lauson Manufacturing Co., New Holstein, Wis., has appointed agencies with the Gibbes Machinery Co., Columbia, S. C., for the Carolinas, and W. J. Dabey Implement Co., Atlanta, Ga., distributor of tractors, motor cars and farm implements.

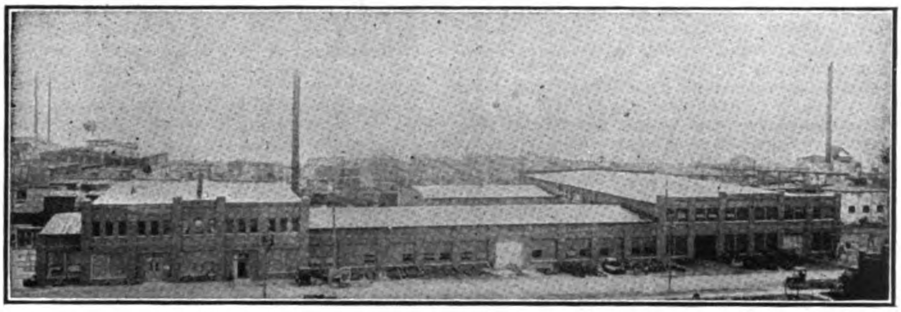


Employees of the Goodyear Tire and Rubber Co., Akron, O., Training in the Rudiments of Military Evolutions in Preparation for War Service.

The Elkhart Carriage and Motor Car Co., Elkhart, Ind., is running night and day, Sundays included, so as to finish a government order of 4500 ambulance bodies. The manufacture of the Elcar is being continued.

The Langstadt-Meyer Manufacturing Co., Appleton, Wis., is enlarging its capacity by taking over the building occupied by the Appleton Motor Car Co. The entire building will be converted into a machine shop. The company manufactures farm lighting systems and direct connected generating units for other purposes.

The Kahlenberg Brothers Co., Two Rivers, Wis., has started the erection on a new assembling, testing and shipping building. The new building will be equipped with an electric traveling crane and the most modern testing equipment and accessories. They manufacture stationary oil engines.



New Office Building and Units of the Plant of the Acme Motor Truck Co., Cadillac, Mich., Just Completed and Occupied.

The Pierce-Arrow Motor Car Co. has declared its regular quarterly dividend of $1.25 a share, payable Nov. 1 to stockholders of record Oct. 15.

The Lauson Tractor Co. has appointed the following agencies: W. R. Holmes & Son, St. Louis, Mo., Eastern Missouri, Southern Illinois, Kentucky, west of the Tennessee and a few counties in Northern Arkansas; Mountain State Motor Co., Charleston, W. Va., West Virginia; Dan W. Tait, Decatur, Ill., 19 counties in Central Eastern Illinois; Comsigny Motor Truck Co., Des Moines, Ia.

The Sanford Motor Truck Co., Syracuse, N. Y., has placed the following new agencies as distributors of the Sanford trucks: Donahoo Horse and Mule Co., 2701 Second Ave., Birmingham, Ala.; W. L. Fanshawe, Box 269, 322 High St., Burlington, N. J.; Joe Willoford, Ardmore, Okla.; J. H. Lincoln, Jr., Henryette, Okla.; Isaac Plasterer, Lebanon, Pa.; L. A. Farley, Lancaster, Pa.; Elano Zimmerman, Manheim, Pa.; Herr Bros., Quarryville, Pa.; Central Garage, Clinton, Conn.; C. E. Norton, Guilford, Conn.; Raoul M. Delagrange, Stonington, Conn.; Frisbie-McCormick Co., Norwich, Conn.; Martin B. Dodd, Norfolk, Conn.; J. F. Falconer, Springfield, Mass.; K. W. Osgood, 673 Connecticut Ave., Bridgeport, Conn.; Mr. Dell, Dell's Garage and Service Station, Hartford, Conn.; S. L. Benedict, 73 N. Main St., S. Norwalk, Conn.; New England Motor Sales Co., 23 Putnam Ave., Greenwich, Conn.; E. J. Denning, 55 W. Main St., Stamford, Conn.; Jefferson Auto Co., 27 Jefferson St., Waterbury, Conn.; Central Garage, 36 Third St., Derby, Conn.; Gilmartin & Day Garage Co., 127 Colony St., Meriden, Conn.; Wm. Luby, 9 South Colony St., Wallingford, Conn.; Park Avenue Garage, Meadville, Pa.; P. Mori & Co., Loyalhanna, Pa.; Woodling Auto Co., Haysville, Pa.; T. C. O'Rourke, Washington, Pa.; J. P. Mooney, McKeesport, Pa.; J. L. Culp, Indiana, Pa.; Elite Garage, Charleroi, Pa.; W. C. Laderer & Co., Butler, Pa.; Maurice Machine Co., Jeanette, Pa.; National Auto Co., Uniontown, Pa.; Rose Brothers Auto Co., Greensburg, Pa.; F. M. Robb, Latrobe, Pa.; Snyder Bonze Baker Co., Bellevue, Pa.; A. E. Sarver, Bellevue, Pa.; D. L. Shaffer, Kittaning, Pa.; Wells Mills Electric Co., Connelsville, Pa.; J. A. Stokes, Blairsville, Pa.; Myers Carriage Co., Franklin, Pa.; Carnahan Transfer and Storage Co., Oil City, Pa.; Overland-Warren Co., 617 E. Pennsylvania Ave., Warren, Pa.; Pooler & Emery, Skowhegan, Me.; O. F. Files, P. O. Square, Bangor, Me.

The Grand Rapids Brass Co., Grand Rapids, Mich., is erecting an addition to its factory. It will contain three stories and basement. The building will be completed in January.

The Timken-Detroit Axle Co., Detroit, Mich., is erecting a two-story addition to its factory and a one-story addition to its foundry.

Charles B. Bohn Foundry Co., Detroit, Mich., is building a two-story addition to its foundry and a one-story core room at the plant.

Lester E. Willson is now general sales manager of the Dauch Manufacturing Co., Sandusky, O., manufacturer of the Sandusky tractor. He was formerly vice president in charge of sales of the Briscoe Motor Corporation, Jackson, Mich. J. W. Wellington, formerly production manager of the New Castle, Ind., plant of the Maxwell Motor Co., has been made general manager of the Dauch company.

RECORD OF NEW BUILDING PLANS IN NOVEMBER

Contracts Made and Plans Contemplated for Alterations or the Building of Garages, Repair Shops, Service Stations and New Plants.

CONTEMPLATED PLANS AND SPECIFICATIONS.

Florence, Ala.; Smith & Babbitt; one-story garage; $51,000.

Montgomery, Ala.; L. C. Cardinal; one-story garage, 80x80; $10,000.

Montgomery, Ala.; Cole Motor Car Co.; one-story garage, 50x150.

Little Rock, Ark.; W. A. Smith; one-story garage, 80x90.

Miami, Fla.; F. W. Haskell; one-story garage; $2000.

Palm Beach, Fla.; Frank H. Clements; one-story garage; $12,000.

Chicago, Ill.; A. A. Tocha, 1227 North Ashland avenue; $1200.

Gary, Ind.; M. Levy, 704 Fillmore street; one-story garage, 26x34; $2000.

Ashland, Ky.; J. H. McCleary; two-story garage, 50x100; $10,000.

Albany, N. Y.; William Graft, Western avenue and Qual street; one-story garage, 23x44; $4000.

Brooklyn, N. Y.; Max E. Schaeffer, 4014 Third avenue; one-story garage, 48x100; $3000.

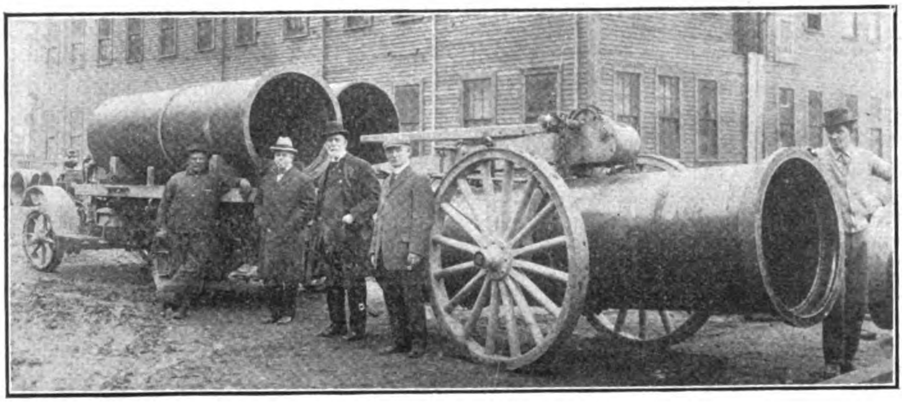
Brooklyn, N. Y.; Johnson Construction Co., 79th street and Fifth avenue; 10 one-story garages, 16x17; $5000.

Brooklyn, N. Y.; Kensington Homes Corporation, 614 West street; three one-story garages, 20x20; $3000.

Brooklyn, N. Y.; Louis Eiser, 369 Crown street; one-story garage, 17x20.

Brooklyn, N. Y.; Marie Feronne, 51 N. Elliott place; one-story garage, 32x75; $2000.

Brooklyn, N. Y.; Rodney Improvement Corporation, care Weismann & Hertz, 44 Court street; one-story garage, 110x200.



Truck with Semi-Trailer with Chain Winch on Pole, Specially Designed for the Haulage of Main Pipe by the Lynn, Mass., Water Department.

Baltimore, Md.; Isaac Ellinger, 314 St. Paul street; one-story brick garage, 53x98; at 231 Holliday street.

Baltimore, Md.; Crown Cork and Seal Co.; 1511 Guilford avenue; two-story garage, 100x150.

Baltimore, Md.; Griffith & Turner Co., 205 N. Paca street; two-story garage and show room, 25x130; $10,000.

Baltimore, Md.; Joseph Rutkowski, 731 Ann street; one-story gargae, 54x82; $6000.

Baltimore, Md.; H. W. Cooke, Law building; one-story garage, 25x30; $3000.

Elkton, Md.; Standard Oil Co., Pier 2, Pratt and Commerce streets, Baltimore, Md.; one-story garage, 24x30; $4000.

Detroit, Mich.; L. Kramer & Son, 153 Franklin avenue; one-story garage, 25x50; $2000.

Detroit, Mich.; Detroit Shell Co.; one-story garage; $6000.

Duluth, Minn.; E. L. Hemenway, 2115 E. Third street; one-story private garage; $1500.

Kansas City, Mo.; D. D. Swearingin; one-story garage, 50x115.

Lincoln, Neb.; H. E. Wood, 146 S. 28th street; one-story garage, 50x138; $14,000.

Omaha, Neb.; Consumers' Refining Co., Grain Exchange building; one-story garage, 40x94; $3500.

Kearney, N. J.; Schwarz Brothers Co.; 1100 Harrison avenue; one-story garage, 60x70; $10,000.

Newark, N. J.; Kilba Wrecking and Constructing Co., 28 Peshme avenue; one-story garage, 42x50; $4000.

Newark, N. J.; Prudential Insurance Co., 763 Broad street; one-story garage, 25x32; $2500.

Ridgewood, N. J.; Harry McIntosh, Wyckoff, N. J.; one-story private garage, 20x25; $2500.

Buffalo, N. Y.; M. D. Dowenfield, 11 Goodell street; one-story public garage, 68x104; $3500.

College Point, L. I., N. Y.; John Ley, Second avenue and Seventh street; four garages; $3000.

New York, N. Y.; Estate George F. Johnson, 30 E. 42nd street; one-story brick garage, 55x62.

Niagara Falls, N. Y.; Acheson Graphite Co., 20x82; $3500.

Richmond Hill, L. I., N. Y.; Ring Gibson Co., 766 Fresh Pond road, Ridgewood, L. I.; one-story garage, 12x18; $6000.

Richmond Hill, L. I., N. Y.; Josephine Miller, 213 Waverly place; one-story garage, 25x60; $1500.

Richmond Hill, L. I., N. Y.; Ferdinand Reineking, 1462 Woodhaven avenue; one-story garage, 25x60; $2000.

Rockaway Beach, L. I., N. Y.; R. Rehm Co., S. W. corner L. I. R. R. and Division avenue; one-story garage, 25x60; $2000.

Rochester, N. Y.; Northwest Foundries, Inc., 14 Hiley place; one-story garage, 50x100; $7500.

Cincinnati, O.; Standard Oil Co., E. Ohio Gas building, Cleveland; one-story gasoline filling station, 14x14; $1100.

Bradford, Pa.; N. Henline; one-story garage, 24x40; $8000.

Clearfield, Pa.; Charles Wall; one-story garage, 25x45; $8000.

Pittsburgh, Pa.; Jones & Laughlin Steel Co.; Second avenue and Ross street; one-story garage; $2400.

Pittsburgh, Pa.; George Ehrlinger Sons Co., 425 Van Braam street; one-story auto garage, $2500.

Beaumont, Tex.; J. B. Laugham; one-story hollow tile garage; $9750.

San Antonio, Tex.; Magnolia Petroleum Co., Galveston, Tex; one-story brick garage; $7500.

Alexandria, Va.; Charles King & Sons, 219 N. Lee street; one-story garage, 56x103; $6500.

Milwaukee, Wis.; A. F. Gallum & Sons, 1000 N. Water street; one-story garage; $25,000.

CONTRACTS AWARDED.

Washington, D. C.; R. P. Whitty Co., Union Trust building; two-story garage for H. B. Wilson, 715 Eighth street, N. W.; $50,000.

Anderson, Ind.; C. W. Hubbard, 1402 W. Sixth street; one-story public garage, 50x108; for George W. Pierce, 1816 Central avenue; $8000.

Marion, Ind.; L. L. Johnson & Son; one and two-story garage, 40x50.

Baltimore, Md.; Frederick W. Felte, 319 S. Pulaski street; one-story brick garage, 29.9x35.4, at 2103 Frederick avenue; for Otte Obst, 51 Gorman avenue.

Baltimore, Md.; W. H. Callahan, Jr.; one-story private garage, 53x98; for Isaac Ellinger, 314 St. Paul street; $10,000.

Detroit, Mich.; Culbertson Kelly, 809 Ford building; one-story garage, 40x106; for National Twist Drill Co., 1456 Brush street; $10,000.

Newark, N. J.; Frank H. Hannon, 237 S. 11th street; five individual garages; $2000.

Newark, N. J.; Fiske Brothers Refining Co., 76 Esther street; one-story garage, 22x28; $2000.

Orange, N. J.; Savoie Rizzolo Twelve; one-story individual garage for Charles H. Phillips; $5000.

South Camden, N. J.; Doyle & Co., 1519 Sanson street, Philadelphia; one-story private garage for New York Shipbuilding Co., Broadway and Fairview street; $40,000.

Cincinnati, O.; M. E. McCassy, 811 Glenwood avenue; one-story private garage, 20x20; for Frank Hoffner, 568 Hornell street; $1700.

Cleveland, O.; George Hennings, 3821 W. 36th street; 6 one-story garages, 30x75; for Koblenger Brothers, 3153 West 63rd street.

Cleveland Heights, O.; F. P. Rothenbecker, Cleveland; one-story private garage, 25x50; for B. E. Hinig, Garland building, Cleveland; $2500.

Piqua, O.; J. J. Davis; one-story garage, 30x40; for Favorite Stove and Range Co., Miami and Webster streets; $3000.

Philadelphia, Pa.; Robert E. Lamb, 843 N. 19th street; one-story private garage, 22x38; for J. R. Keim Co.; $1500.

Philadelphia, Pa.; Robert Killough; one-story garage, 18x23; at 133 West Hortter street; $1150.

Philadelphia, Pa.; James N. Mitchell; one-story stone garage, 14x21; north side Arbutus street, west Lincoln avenue; $600.

Philadelphia, Pa.; George Godshall; one-story stone garage, 22x30; at 6828 Anderson avenue; for Richard L. Wallace; $1400.

Philadelphia, Pa.; N. Morino; one-story stone garage, 16x23, at 5908 Latona street; for Michall Picialo; $800.

Pittsburgh, Pa.; David Weir, 530 Sampson way; seven one-story garages, 26x75; for E. M. Brickell, care N. S. Real Estate Co., Federal and S. Diamond streets.

Pittsburgh, Pa.; Edward A. Weber, Hiland building; one-story distributing station, garage and service station, 29x54; for Atlantic Refining Co., Chamber of Commerce building; $30,000.

Pittsburgh, Pa.; George L. Bennett, three one-story garages; for W. S. Smith, 714 Monticello street; $1500.

Norfolk, Va.; Gordon-Hume, Bank of Commerce building; one-story garage; $2000. ,

NEW BUSINESS CONCERNS, GARAGES AND AGENCIES

The Month's Record of Garages, Agencies, Branches, Service Stations and Repair Shops

FACTORIES, GARAGES AND REPAIR SHOPS.

Anniston, Ala.; The Electric and Auto Shop is erecting a garage.

Anniston, Ala.; Southern Garage Co. is erecting a garage. J. R. Sneed is manager.

Sheffield, Ala.; Quick Service Garage is erecting a new garage.

Petaluma, Cal.; Lloyd's Auto Electric Works has added an electrical repair shop. The company are dealers in Willard batteries.

Scotia, Cal.; H. W. McIntire has opened the Scotia Garage.

Springfield, Ill.; Farmers Motor Supply Co. is erecting a new garage.

Kansas City, Mo.; New York Garage is erecting a new garage.

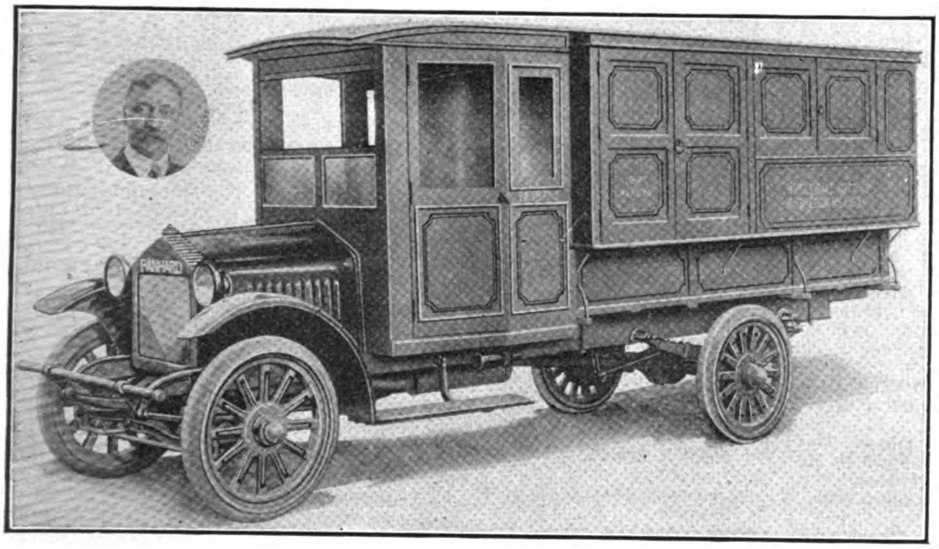
Mexico, Mo.; Smith Brothers Automobile Co. is erecting a new garage.

Canton, O; Harman Brothers have opened a garage and automobile sales room.

Toledo, O.; A. T. Peterson is erecting a fireproof brick garage.

Cherokee, Okla.; Boles & Heath has opened for business. They are the successors of H. M. Heath. All kinds of tire repair work is to be done.

Philadelphia, Pa.; I. Abramson is erecting a $3000 garage at 858 North Ordnay street.



The Panhard Truck, Equipped with a Special Body, Used by John T. Wiersema, Muskegon, Mich., to Sell Direct to Country Stores.

Clear Lake, Ia.; Hills & Sweeney is erecting a garage.

Des Moines, Ia.; W. T. Bush has opened a garage and machine shop at 526 East Walnut street.

Des Moines, Ia; Murphy & Cohen have opened a garage and service station on the East side. It will be called the Northwestern Garage.

Altoona, Kan.; W. E. Clayton has opened a Ford accessory shop and will also do repairing and vulcanizing.

Bison, Kan.; Sam Schneider has leased the Strange Garage and has opened for business.

Great Bend, Kan.; Leo Kern has opened a repair shop for Ford cars. He also conducts a garage.

Macksville, Kan.; Roy Harman has reopened his repair shop.

Neodesha, Kan.; Bert Ally has opened the Ford Garage.

Pittsburgh, Kan.; P. W. Mathews has opened a repair shop.

Valley Centre, Kan.; R. J. Postlethwait has opened a new garage.

Washington, Kan.; G. W. Willis is building a new garage.

Springfield, Mass.; William F. Carlin has leased the Elm Garage on Elm street, West Springfield, and is to operate a general repair department as well as carry automobile supplies.

Grand Rapids, Mich; L. C. Rockwell is erecting a new garage on Wealthy and Eastern avenues.

Litchfield, Mich.; The Little Better Service Garage has opened its new garage.

Holland, Mo.; S. D. Bray is building a garage.

Philadelphia, Pa.; James Brady is erecting a garage on Germantown avenue and Luzerne street at the cost of $3000.

Philadelphia, Pa.; J. Gibson McIlvan Co. is building a garage to cost $14,000 at 58th street and Woodland avenue.

Del Rio, Tex.; A. Madison has erected a new garage.

Appleton, Wis.; Wagner-Walter Auto Co. is erecting a garage 30 by 100 feet.

Caroline, Wis.; C. L. Radtke has opened a new garage and will conduct a repair shop for automobiles and provide room for storage.

Footville, Rock County, Wis.; Clark Garage Co. is erecting a new garage 40 by 70 feet.

Rhinelander, Wis.; Albert E. Briggs is building a garage 30 by 90 feet.

AGENCIES, DEALERS AND SERVICE STATIONS.

Tuscaloosa, Ala.; The Oswald Garage has taken the agency for Kissel cars and established a sales room. It is to maintain a service station in connection with the Kissel sales rooms.

Little Rock, Ark.; The Laser Motor Co. has taken the agency for the Cleveland tractor and will distribute it in 25 counties.

Arcata, Cal.; Cliff McCready has added a tractor department and opened Cleveland tractor sales rooms. He is owner of the O. K. Garage.

Eureka, Cal.; The Airth Automobile Co. has opened new sales rooms on Fifth street and will handle the Lalley farm lighting systems.

Eureka, Cal.; Hermansen & Green, Seventh and D streets, have added an accessory department and enlarged their sales room.

Rosa, Cal.; Girrens Brothers will distribute the Fordson tractor.

Santa, Rosa, Cal.; Houts-Moulton Overland Co. has secured the agency for Lalley farm lighting plants.

Hartford, Conn.; The Electric Auto Station, 412 Church street, has taken the agency for U. S. L. battery.

Hartford, Conn.; The Holcombe Repair Co. has taken on agency for the Federal tire.

Hartford, Conn.; Metcalfe & Berry, 134 Church street, have taken the Portage tire and will distribute same.

Chicago, Ill.; The Auto Parts Co. of America, 727-9 West Jackson boulevard, has opened a new Ford accessory department in its salesrooms. It carries a full line of stocks and accessories.

Chicago, Ill.; The Board of Trade has partially opened for business. It occupies a six-story building at 430-36 Sherman street and is one of the largest in the country. J. M. Allen is manager of the company. The building is of steel and concrete construction.

Springfield, Ill.; The Springfield Truck and Tractor Sales Co. has organized and will be distributor for the International and Waterloo Boy tractors and trucks in the Sangaman county territory. J. E. Butts is president and general manager of the new concern.

Indianapolis, Ind.; The Nordyke & Marmon Co. has installed a new repainting department in its branch at 11th and Merium streets. A. B. Wagner is the manager of the local branch.

Warren, Ind.; Smethurst Brothers has added the Case tractor to its line, which already includes motor cars, implements, hardware, stoves and buggies.

Boone, Ia.; The Boone Buick Auto Co. has taken the agency for G. M. C. trucks in the counties of Storey, Boone, Green, Carroll and the south half of Hamilton.

Boone, Ia.; G. A. Keenan has taken the agency for the Master trucks and will cover the city and Boone and Storey counties.

Fort Dodge, Ia.; The Service Tire Co. has opened a shop and sales room at 422 Central avenue and has taken the agency for the Miller and Hartford tires.

Fort Dodge, Ia.; The Tremain & Rankin Auto Co. has taken the agency for the Graham attachment for Dodge Brothers cars.

Manhattan, Kan.; The Auto Electric Co. has opened a battery station at the Dewey Garage.

Wichita, Kan.; Roper-Allen Motor Truck Sales Co. will soon open for business.

Worcester, Mass.; The Markel Auto Co., 22 Commercial street, has opened a new battery department. Michael K. Markel is the president of the company.

Grand Rapids, Mich.; The Universal Car and Service Co. has taken the distribution of the Dort throughout 17 counties in Western Michigan.

Detroit, Mich.; The Woodward Tire and Repair Co., 1319 Woodward avenue, has been appointed distributor for the Goodyear solid truck tires. The company maintains a complete truck tire plant to take care of repairs and especially on pneumatic tires.

Mexico, Mo.; Mexico Motor Co. has opened for business.

Omaha, Neb.; The Jones-Opper Co. will distribute Cleveland tractors.

Albany, N. Y.; E. V. Stratton Motors Co., Inc., has taken on the Hi-Speed Trailercar and will distribute these trailercars in Northeastern New York.

New York, N. Y.; The Cooney Sales Co. has taken the agency for the Famous truck and have opened temporary sales rooms at 11th avenue and 55th street.

Cleveland, O.; The Stearns Motor Sales Co. has secured the agency for the Vim truck for the Cleveland territory.

Comanchie, Okla.; The Kincaid & Robb Garage has added another Bowser gasoline station to its line of accommodations.

Elk City, Okla.; The Willard Service Station is now open for business.

Corvallis, Ore.; Hunsperger & Co. have taken the agency for the Kissel car and has established sales rooms.

Portland, Ore.; Allen & Hebard Co. will distribute the Thermoid automobile tire.

Portland, Ore.; Oregon Motor Car Co. has taken the agency for the Globe tire for Portland and Multnomah county.

Portland, Ore.; David A. Pepp has taken the Oregon-Washington territory for the Fulton truck.

Erie, Pa.; The A. & A. Motor Car Co., distributor of the Reo, has secured the agency for Acason.

Orange, Tex.; The Overland-Orange Co. has opened a service station with P. Abel as manager.

San Antonio, Tex.; The United States Co. has been appointed distributor of the Fruehauf trailer.

Seattle, Wash.; E. J. Jaeger Tire Co. has opened a tire and accessory store at 719 East Pike street.

Seattle, Wash.; Mitchell Motor and Service Co. has been appointed distributor for the Peerless truck line in Western Washington.

Seattle, Wash.; Master Electric Co. has secured the agency for the Permalife Storage Battery Co. for the State of Washington.

Seattle, Wash.; Shields-Livengood Motor Co., at 11th and East Pike streets, have opened new sales rooms.

Seattle, Wash.; Zbinden-Wood Motor Co. has been appointed a distributor of Vim delivery cars.

Tacoma, Wash.; R. P. LeFeber will distribute Denby trucks in Tacoma and Southwest Washington territory.

Milwaukee, Wis.; Upham & Schacht, Inc., have taken the agency for Service trucks in sales rooms at 2602 North avenue.

NEW CONCERNS RECENTLY INCORPORATED

Monthly Record of New Business Houses for which Charters Have Been Issued in the Various States and Classified According To Nature of Business

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Dover, Del.; Dunbar Tire and Rubber Co.; $100,000; C. L. Rimlinger, M. M. Glancy, P. B. Drew.

Dover, Del.; McCullough Tire Co.; $10,000; C. L. Rimlinger, M. M. Clancy, F. A. Armstrong.

Dover, Del.; Security Auto Theft Signal Co.; $1,000,000; T. L. Weed, A. M. Twoney, H. L. Higgins.

Wilmington, Del.; Ohio National Rubber Co.; $50,000; E. E. Erb, E. M. Jauss, M. C. Miller.

Los Angeles, Cal.; Morris Tire Machinery; $57,600; to deal in rubber goods; E. H. Furman, E. Wengler, H. Laughlin.

Chicago, Ill.; Cudgell's Rubber Hub Co.; $140,000; L. Cudgell, L. Paridor, H. Hankins.

Wichita, Kan.; Rubber Products and Supply Co.; $10,000; to transact a general business in rubber goods, automobile tires, tubes and accessories; W. G. Barbour, B. A. Helfrick, P. Deam, E. Blake, F. Purnell, F. C. Dymock.

Detroit, Mich.; Woodward Tire and Repair Co.; $75,000; John T. Bellanger, A. J. Pepin, J. R. Beasley.

Patterson, N. J.; Pan-American Rubber Co.; $20,000; to manufacture rubber goods and all goods of which rubber is a component part; F. Christmann, A. F. Bottcher, F. Coelin.

Trenton, N. J.; James J. Matthews Co.; $25,000; to deal in automobile accessories; James J. Matthews, George K. Slingland, Robert J. Stell..

New York, N. Y.; Amazon Tire Co.; $10,000; O. Moynithan, L. J. Schott, F. H. Findley.

New York, N. Y.; Dace Rim Co.; $50,000; to manufacture rims, tires and automobile parts; E. T. Burney, E. E. Fish, H. B. Wood.

New York, N. Y.; Hudson Tire Co.; $15,000; E. O'Beirne, M. Bohan, J. O'Connor.

New York, N. Y.; J. and D. Tire Co.; $50,000; F. McAllister, T. G. Patterson, W. J. McAllister.

New York, N. Y.; Rohmer Tire and Rubber Co. of Akron, New York City; $40.000; to manufacture and deal in tires and rubber goods; G. E. Rohmer, A. D. Paillot, W. F. Timme.

New York, N. Y.; Vulcan Export Corporation; $5000; to deal in automobile accessories and agricultural machinery; S. Solomon, D. Solomon, M. Ulman.

Cleveland, O.; Uncle Sam Tire Co.; $20,000; George B. Cooper, Joseph V. Mitchell, Daniel Kekle, Bert S. Benjamin, Ignatius Usavych.

Portland, Ore.; Kelly Tire Sales Co.; to handle the entire state of Oregon for Kelly-Springfield tires; J. H. Ainscough, R. R. Lawes.

Philadelphia, Pa.; Tillinghast Rubber Co., Inc.; $75,000; to manufacture tires and tubes and rubber goods; L. W. Tillinghast, A. W. Tillinghast, J. K. Carr, J. H. Beith, C. Hess, Jr., R. F. Crippen.

Houston, Tex.; Preston Tire Co.; $15,000; Claude Kavanaugh, N. J. Kavanaugh, C. R. Bendett.

Milwaukee, Wis.; Great Lakes Rubber Co.; $100,000; to manufacture rubber goods of all descriptions; D. C. Barbee, C. J. Zaiser, H. O. Wolfe.

Milwaukee, Wis.; Rainbow Oil Co.; $30,000; to establish and maintain oil wells and refineries; John Borman, Bert Schroeder, Andrew Benzinger.

NEWLY ORGANIZED MANUFACTURERS OF CARS, TRUCKS AND TRACTORS.

Dover, Del.; Liberty Car Co.; $100,000; Samuel B. Howard, Paul S. Smith, William Aroers.

Louisville, Ky; Kentucky Master Truck Co.; $15,000; F. X. Schuler, A. A. Frikson, C. E. Bauer.

Augusta, Me.; Pyramid Manufacturing Co.; $100,000; M. F. Hearin, R. W. Farris, C. L. Andrews.

Juniata, Mich.; Juniata Threshing Machine Co., Ltd.; $1400; John H. Baxter, Fred Kennard.

Omaha, Neb.; Midwest Truck and Tractor Co.; $25,000; John J. Murphy, Frank T. Walker, Frank T. Walker, Jr.

Philadelphia, Pa.; Hurlburt Motor Truck Co.; $100,000; A. C. Gillane.

Knoxville, Tenn.; Cooper Rubber Co.; $40,000; to buy, sell and manufacture automobiles, bicycles, motor trucks and tractors; I. J. Cooper, J. W. Brumbaugh, R. D. Bond, H. H. Brenner, E. Wilkins.

Orange, Tex.; Blumberg Motor Co.; $100,000; to manufacture farm tractors and power trucks; H. G. Blumberg, E. W. Anderson, E. O. Dean, J. M. Dullahan, Lee Woodworth, W. H. Litchfield, H. L. Stark.

GARAGE AND REPAIR SHOPS.

Los Angeles, Cal.; The Woodward Garage and Truck Attachment Co.; $10,000; to manufacture attachments and parts for motor trucks; W. H. Brower, Walter Little.

Doup's Point, Ky.; Doup's Point Garage; $5000; A. J. Schlinger, Sr., A. J. Schlinger, Jr., Joseph Balbach.

Louisville, Ky.; West Broadway Auto Co.; $3000; to operate a garage; H. H. Poutch, A. B. Madion, A. Halblieb.

Omaha, Neb.; Good Wear Tire and Garage Co.; $15,000; Aaron Ferer.

New York, N. Y.; 167th Street Garage; $10,000; L. P. Essman, V. B. MacBain, J. B. Baer.

Cambridge, O.; Columbus-Guernsey Garage Co.; $20,000; W. A. Backburn, C. B. McCoy, M. W. Hutchison, J. M. Ray, H. P. Masters.

Norfolk, Va.; Virginia Beach Garage, Inc.; $10,000; to deal in automobiles; Emerson Land, president; John H. James, secretary.

PARTS AND FITTINGS MAKERS.

Los Angeles, Cal.; The Ruhland Automobile Works; $25,000; to manufacture automobile parts; T. F. Ruhland, T. E. Ruhland, David E. Rulwider.

Waterbury, Conn.; Main Auto Parts Co.; $10,000.

Dover, Del.; Hubbard Pressed Steel Co.: $500,000; C. L. Rimlinger, M. M. Clancy, F. A. Armstrong.

Dover, Del.; Pittsburgh Generator Co.: $50,000; J. Kennedy, F. Giles, M. M. Clancy.

Dover, Del.; Press-to-Ford Starter Co.; $15,000; Robert E. Dogan, Lillian A. Warren, Gustave A. Hurst, Jr.

Dover, Del.; Specialty Products Co.; $100,000; C. L. Rimlinger, M. M. Clancy, F. A. Armstrong.

Dover, Del.; Weatherby Steel Castings Co.; $100,000; C. L. Rimlinger, M. M. Clancy, F. A. Armstrong.

Dover, Del.; Wheel and Rim Works Corporation; $600,000; to manufacture automatic signal horns, airplanes, tractors and automobiles; S. B. Howard, G. V. Reilly, A. W. Britton.

Detroit, Mich.; Liberty Carburetor Co.: to manufacture a special carburetor for Ford cars known as the Liberty; Jere McCarthy.

New York, N. Y.; Acme Steel Goods Co. of New York; H. G. Merrill, J. J. Silver, A. C. Kahn.

New York, N. Y.; Advance Drill Press Co.; $5000; to deal in machinery and tools; R. Trubner, D. Getz, R. Haberman.

New York, N. Y.; Federal Tool and Alloy Steel Corporation; $750,000; C. H. Burke, T. Towne, E. L. Munson.

Mt. Vernon, N. Y.; Mount Vernon Metal Products Co.: $150,000; C. St. L. Molley, D. H. Wilson, W. E. Taylor. .

New York, N. Y.; Whale Back Wheel Corporation; $18,000; to manufacture automobile wheels; P. Duffy, J. White, H. Lesser.

Johnson City, Tenn.; The Southern Bending Co.; $30,000; will equip a plant to manufacture bent rims for automobiles, wagons and dimension stock; W. O. Nelson.

Racine, Wis.; Andis Tool Co.; $25,000: to engage in the manufacture of tools, dies, jigs and machinery; Mathew Andis, John Oster, Frank Bichalm, Henry E. Meltzer.

DEALERS IN AUTOMOBILES AND MOTOR TRUCKS.

Wilmington, Del.; American Auto Systems Co.; $100,000; to buy and sell automobile trucks.

Dover, Del.; Crescent Auto Machine Works, Inc.; $10,000; William F. O'Keef, George G. Stigler, J. H. Dowdell.

Dover, Del.; Fulton Motor Truck Co. of Texas; $200,000; Paul S. Smith, Clarence S. Rice, Samuel B. Howard.

Dover, Del.; Interstate Motor Transport Co.; $100,000; Bernhold Helman, Gustav Andes, James A. Callahan.

Jacksonville, Fla.; G. W. Brown Co.; $25,000; G. W. Brown, president and treasurer; M. E. Brown, vice president; E. W. Yandre, secretary.

Chicago, Ill.; Ursus Motor Co.; $50,000; Leonard S. Szmkowski, Stanley Bystrzynski, Theodore Zennara.

Detroit, Mich.; Inter-City Truck Service; $10,000; Frank D. McCormick, E. H. McCormick, G. M. Wright.

St. Louis, Mo.; H. Bollwerk & Brothers; to deal in automobiles; Henry Bollwerk, Joseph Bollwerk, H. B. and K. A. Bollwerk.

St. Louis, Mo.; Grand-Garvois Automobile Co.; $15,000; to deal in automobile supplies, solid, pneumatic and cushion tires and to do automobile and truck repairing; A. J. Dietrich, J. T. Mueller, E. L. De Winter.

Omaha, Neb.; O'Rouke-Goldstrom Auto Co.; $50,000; to deal in new and used automobiles; Sol Goldstrom, Joseph F. O'Rouke, Arthur Sorenson.

Newark, N. J.; Ranier Trucking and Contracting Co.; $10,000; Aaron Weinberg, Abram Wenberg, Samuel Rudensey.

New York, N. Y.; Carting Research and Manufacturing Co.; $12,000; A. S. Pinkus, E. Knox, B. Leavitt.

New York, N. Y.; K. & Q. Auto Trucking Co.; $10,000; S. Robell, L. Goldbaum, C. Kahn.

New York, N. Y.; Lorbo Co.; $5000; to conduct a storage and warehousing business; P. Loria, J. Bergman, H. Bergman.

New York, N. Y.; Schade Phelps Corporation; $25,000; to distribute everything connected with motor vehicles; H. P. Schade, L. H. Phelps, W. F. Ashley, Jr.

New York, N. Y.; Transport Storage Co.; $10,000; H. Lesser, A. J. White, C. O. Baese.

New York, N. Y.; Victor Gauge and Ordnance Tool Corporation; $10,000; W. J. Dorack, Jr., F. G. Cathrall, R. G. Stoeppner.

Cleveland, O.; S. & K. Co.; $10,000; to buy and sell trucks; R. D. Swan, Henry M. Adolph, Robert G. Adolph, George D. Hile, M. Flynn.

Connellsville, Pa.; Union Auto Co.; $15,000; Andy George.

Philadelphia, Pa.; Keystone Auto Sales Corporation; $10,000; Frank H. Stehle.

Philadelphia, Pa.; Southwestern Ford Agency, Inc.; $42,000; to act as sales agents; F. R. Hansell, J. Vernon Pimm, S. C. Seymour.

Providence, R. I.; Pierce-Arrow Trucking Co.; $75,000; to transport, buy, sell and repair automobiles; James S. Orr, John J. Orr, John O. Pelchat.

Norfolk, Va.; Norfolk Automobile Service Corporation; to deal in automobiles; $100,000; S. E. Tillitt, president; E. W. Willcox, Jr., vice president; C. E. Willcox, secretary and treasurer.

Richmond, Va.; Dallas A. Shager & Co.; $75,000; Dallas A. Shager, Hunter D. F. Fox.

Roanoke, Va.; Turner-Jennings Motor Co.; $50,000; A. R. Jennings, president; T. E. Turner, secretary.

Milwaukee, Wis., Zwebell Brothers Co.; $15,000; to manufacture a machine to repair automobile tires; H. A. Zwebell, A. B. Zwebell, A. R. Zwebell.

TRADE INFORMATION EXCHANGE

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Grand Rapids, Mich.; T. G. McGurrin, 41-45 Ottawa avenue, is in the market for odometers, dump hoist bodies, 2-3½ and five ton. The products are to be used for sales and distribution.

Okemah, Okla.; Henry Mansur and N. A. Taylor, care Okemah Garage, is anxious to secure anti-rattlers, anvils, arbors, axles, banding, batteries, bearings, belts, bodies, boilers, bolts, brushes, bulbs, bumpers, carburetors, chains, fire extinguishers, furnaces, ignition, injectors, lathes, races, radiators, shock absorbers, springs, terminals, timers, tires, transmissions, upholstery, wheels, windshields.

SPECIAL OPPORTUNITY.

Mountain View, Cal.; The Mountain View Vulcanizing Works, 284 Castro street, would consider the agency for a tractor in the territory of Santa Clara county, California.

Mansura, La.; Seeman Glasscock would like to secure information in regard to automobiles and its parts.

Borough of Brooklyn, N. Y.; E. S. Scheneck, 159 25th street, would like to receive a list of manufacturers of automobile accessories.

MITCHELL ADV. AGENCY INC., MOVES INTO NEW HEADQUARTERS.

The Mitchell Advertising Agency, Inc., Minneapolis, Minn., has moved into the Abbay building, at the corner of Eighth street and Mary place. The new quarters are roomier, more pleasant and more conveniently arranged. They provide better working conditions for the larger force made necessary by the company's growing business and will make possible an extension of the scope and efficiency of the service.

JOHNNY AITKEN, RACING PILOT, A VICTIM OF THE INFLUENZA.

The recent death of Johnny Aitken, automobile racer, at Indianapolis, was a shock to that part of the public that has followed automobile speed events. Aitken was a victim of Spanish influenza, and at the time of his fatal illness was in charge of the shop of the Allison Experimental Co. at Indianapolis. He had not been racing for the past two years, had made good progress in the work undertaken after he left the race track, and his friends aver was in excellent position to make a big, assured place for himself in his new work when death came.

There is much comment because Aitken, known as a daredevil driver, who risked his life countless times, should have been a victim of the late epidemic.

Nineteen hundred and sixteen was Aitken's biggest racing season, though he had been a formidable contestant for championship honors before that. In 1916, however, he came very prominently to the front and ended the season a close second to Resta, who was crowned king after the racing season ended. Throughout the season the two were neck and neck for first honors, with the odds in Aitken's favor, and it is generally conceded that his driving gave him a strong hold in the championship, but accidents to Aitken gave Resta the lead which won.

NORDYKE & MARMON WIN THE LIBERTY MOTOR CONTEST.

The Nordyke & Marmon Co., Indianapolis, Ind., won the first honor pennant offered by the United States government to the concern building and shipping 12-cylinder Liberty motors the most rapidly in October. The contest began Oct. 1 and ended Oct. 31. The company made a production record of 225 per cent. of its alloted quota in October. The contests are to be continued each month. Five other firms contested during October.

The flag will be presented today at one of the Indianapolis parks. It will remain at the plant of the winner until won by another concern. Among those who are expected to attend the flag presentation are John D. Ryan, Assistant Secretary of War, and Major General W. L. Kenly, Chief of the Department of Military Aeronautics.

AMAZON RUBBER CO. IS MANUFACTURING BIG LINE.

The Amazon Rubber Co., Akron, O., through the purchase of the tire accessory business of the O'Neil Tire and Rubber Co., have greatly extended their line, which now includes the following products: "Amazon" Car Supertires; "Amazon" Ribbed Tread Supertires; "Amazon" Nonskid Tread Supertires; "Amazon" Red Supertires; "Amazon" Gray Supertires; "O'Neil" Pioneer Reliners; "O'Neil" Pioneer Wing Blowout Patches; "O'Neil" Pioneer Lace-On Boots; "O'Neil" Pioneer Cementless Patches.

CARE OF THE COOLING SYSTEM.

The average motorist spends little time in trying to maintain the running efficiency of his car. This is especially true in caring for the cooling system, which is more important than the average motorist thinks, yet it is generally neglected. If the cooling system is not kept clean and free from leaks it impedes the efficiency of the engine and increases its cost of operation.

The Northwestern Chemical Co. of Marietta, O., makers of the Norwesco line of "Chemically Correct" automotive equipment, have issued a 20-page booklet entitled "Care of the Cooling System."

This booklet is illustrated and conforms to its title, giving the motorist many practical suggestions and valuable information, which will assist him in giving proper care to the cooling system. A copy of this booklet can be secured, postpaid, by writing the Northwestern Chemical Co., Marietta, O.

During the eight months ending Aug. 31 the sales of the United States Rubber Co. were greater by 34 per cent. than they were for the corresponding period of 1917. The working capital of the company is now in excess of $95,000,000, with cash assets exceeding the floating debt about $1,500,000.

Government Bureau of Standards Tests Anti-Freezing Solutions

The question of anti-freezing solutions for automobile radiators was brought very forcibly to the attention of users of motor vehicles last winter, and many requests for information regarding their use were received at the Bureau of Standards. An investigation was undertaken by the bureau to establish the value of these compounds and sufficient data have recently been obtained to justify a preliminary statement. These tests were made on the metals (such as brass or copper and solder) that are used in radiator construction and in the same combinations that are used in such construction. This is necessary in order to obtain the electrolytic action, which is largely responsible for radiator corrosion. Tests made without regard to electrolysis are practically worthless. This work will be continued, tests equivalent to service conditions will be made and a more comprehensive report given at a later date, but in time for use during the coming winter.

TABLE GIVING THE FREEZING POINTS OF SOME ALCOHOL AND GLYCERINE ANTI-FREEZING SOLUTIONS.

Temperature are given both in degrees Centigrade and degrees Fahrenheit. The figures in parenthesis are specific gravities at 60 degrees Fahrenheit. Percentage (by volume) in water and freezing points.

	10 pct.		20 pct.		30 pct.		40 pct.		50 pct.	
	Cen.	Far.	Cen.	Far.	Cen.	Far.	Cen.	Far.	Cen.	Far.
Denatured alcohol	—3	+27	—7	+19	—12	+10	—19	—2	—28	—18
	(0.988)		(0.978)		(0.968)		(0.957)		(0.948)	
Wood alcohol	—5	+23	—12	+10	—19	—2	—29	—20	—40	—40
	(0.987)		(0.975)		(0.963)		(0.952)		(0.937)	
Glycerine (Sp. Gr. 1.2537)	—2	+29	—6	+21	—11	+12	—18	0	—26	—15
Denatured alcohol and glycerine*	—4	+25	—8	+18	—13	+9	—22	—8	—32	—26
Wood alcohol and glycerine*	—4	+25	—9	+16	—15	+5	—24	—11	—35	—31

*Glycerine and alcohol are mixed in equal proportions. Ten per cent. glycerine and denatured alcohol means 10 parts of mixed glycerine and alcohol, or five parts glycerine and five parts alcohol should be added to 90 parts of water.

The ideal anti-freezing compound is one that will prevent freezing of the radiator liquid without injuring either engine or radiator, that will not lose its nonfreezing properties after continued use and that does not materially change the boiling point of water when dissolved in it.

Two Types of Compounds.

There are two general types of these compounds—one a solution in water of alcohol or glycerine, or a mixture of the latter two, the other a solution in water of calcium chloride or the dry salt itself, which contains sometimes small amounts of other substances, such as salt, sal ammoniac, sugar or syrup. Kerosene and similar oils, without admixture, are some times used.

Kerosene has a lower freezing point and higher boiling point than water, but the inflammability of its vapor makes it dangerous to use, and its high and uncertain boiling point might lead to the serious overheating of the engine, or even to the melting of the solder in the radiator. It has a marked solvent action on rubber parts. These facts would seem to clearly indicate that this material should not be used.

The alcohol-water type is the most common and is not generally sold under any trade name but recently there have appeared on the market a number of anti-freezing compounds of the calcium chloride type. These compounds are sold under a variety of names and startling claims are made for their effectiveness and lack of injurious effects.

The effectiveness of all properly prepared compounds, that is, their ability to prevent freezing, needs no discussion. The injurious effects, however, cannot be safely disregarded.

The alcohol solutions do not exert a greater corrosive action than water alone. This can be predicted from theoretical considerations and is well established in practise. However, wood alcohol some times contains free acid, such as acetic acid, which is objectionable, and for this reason wood alcohol should not be used unless it is known to be free from acids.

The calcium chloride compounds exert a greater corrosive action than water on the engine jacket, on the solder in the radiator and on aluminum, which is some times used in manifolds, pumps and headers. The effect on engine jackets may be neglected since these are generally sufficiently heavy to permit considerable corrosion without being weakened. The effect on soldered joints may be serious, since tests made at the Bureau of Standards have shown the complete removal of solder from copper and brass when immersed in a hot 20 per cent. calcium chloride solution for four days. A number of such tests were made and there was always a more rapid corrosion or eating away of solder in these anti-freezing compounds than in water.

Calcium Chloride Solutions.

Calcium chloride solutions corrode aluminum very rapidly. The effect is variable, depending on the kind of aluminum used; blisters appear on ordinary rolled sheet aluminum and as these break the metal separates into scales or plates of corroded aluminum, which open up like the leaves of a book; cast aluminum, especially the copper alloys, show very decided pitting and etching. These tests show conclusively that the corrosive action will be very serious and it is difficult to reconcile these results with the current statement that the effect of calcium chloride solutions on aluminum is not very serious.

Another troublesome effect of calcium chloride solutions is experienced if small leaks occur in the radiator, the water jackets, or connections, and the solution comes in contact with the spark plugs and ignition wires. In some cases the drops of the solution may be carried back on the engine in a more or less atomized state, assisted by the fan when running. The salt deposited when the water evaporates is very difficult to remove and when it cools absorbs water and becomes a good electrical conductor, short-circuiting the spark plugs and some times making it impossible to start the engine. The difficulty may disappear when the engine is heated up.

There are also certain conditions in the manufacture of calcium chloride which may result in a compound that will deposit large crystals in the radiator as the solution cools; this may prevent effective circulation.

Regardless of these objections, reports have been received to the effect that calcium chloride solutions have been used a number of years in the same radiator without producing apparent corrosion. Nevertheless, such solutions cannot be recommended as safe, and they should not be used if there is any aluminum in the cooling system.

The chief advantage of calcium chloride compounds is that they are not volatile. The solutions can be kept practically uniform by adding water from time to time Unfortunately this is not true with the alcohol solutions, because the alcohol continually boils out and it must be replaced frequently in order to maintain the proper proportion of alcohol. Glycerine is frequently substituted for part of the alcohol to reduce evaporation, but when glycerine is used the rubber connections may be affected somewhat seriously, depending on the quality of the rubber. The most practical method to maintain the proper quantity of alcohol in the solution is to determine the specific gravity of the liquid by means of an hydrometer and by reference to the appended table add the necessary quantity of alcohol to obtain the desired gravity. Care should be taken to have the solution thoroughly mixed and as the specific gravities given in the tables are obtained at 60 degrees Fahrenheit, the specific gravity should be measured when the temperature of the solution is between 55 degrees Fahrenheit and 65 degrees Fahrenheit.

The solution may then be kept at the proper strength from day to day by adding alcohol until the hydrometer reads the same as when first noted.

In order to illustrate how a non-freezing solution is prepared by using the table, assume that the lowest temperature anticipated is 19 degrees above zero Fahrenheit and that denatured alcohol is to be used.

By reference to the table in the line marked "denatured alcohol" + 19 degrees Fahrenheit is found in the 20 per cent. column and the specific gravity of that solution is 0.978.

If the radiator holds 3.5 gallons 20 per cent. of this must be alcohol and the remaining 80 per cent. water. Twenty per cent of 3.5 gallons (3.5x.20=0.7) is 0.7 gallon, or a little more than 5.5 pints. Hence a little more than 5.5 pints of alcohol will be required. This should be added to enough water to make 3.5 gallons, i. e. the water used will be 3.5 gallons—0.7 gallon or 2.8 gallon; a little more than 11 quarts.

If the temperature of this solution is brought to 60 degrees Fahrenheit and an accurate hydrometer is floated in it the hydrometer should read 0.978. If the reading is higher than 0.978 more alcohol should be added with constant stirring until the 0.978 mark is reached. (An accurate hydrometer should read 1.000 when placed in water at 60 degrees Fahrenheit and 0.834 in 180 degrees proof alcohol at the same temperature. The denatured alcohol usually sold by dealers is 180 degrees proof, which is the minimum allowed by law.)

A solution so prepared will not begin to freeze until its temperature is approximately + 19 degrees Fahrenheit.

A careful consideration of the question of anti-freezing solutions for radiators leads to the conclusion that (1) calcium chloride compounds should be used with caution, if at all, on account of their corrosive action; (2) kerosene or similar oils should not be used on account of their inflammability, high boiling point and effect on rubber; (3) mixtures of glycerine and alcohol can be used, but the price of glycerine, and the need for it in the manufacture of munitions at the present time should preclude its use; (4) solutions made from either wood alcohol or denatured alcohol seem at the present time to be the most desirable anti-freezing solutions to use. If the wood alcohol is free from acid there is little choice between the two alcohols. Wood alcohol costs more than denatured alcohol and is more volatile, but its lower freezing point allows a less amount to be used, which may counteract the above disadvantage.

Numerous tables have been published giving the freezing points of certain water solutions containing alcohol, glycerine or a mixture of the two, but there is much disagreement in the figures given.

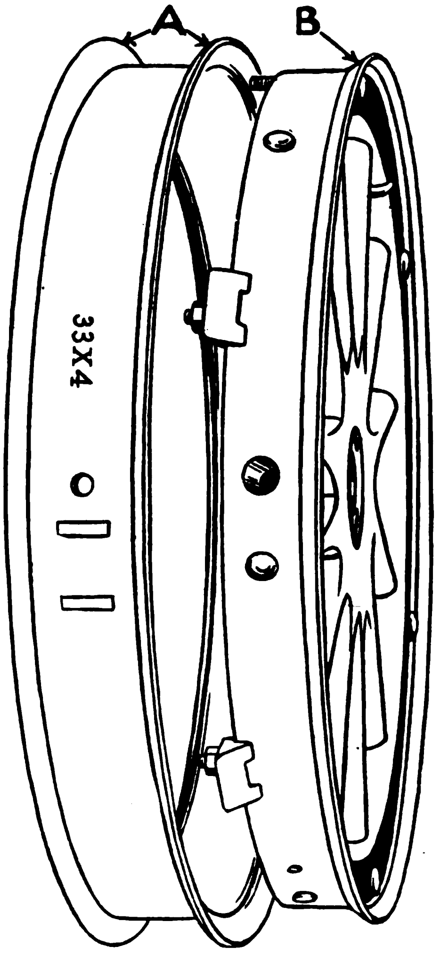
There is appended a table of freezing points obtained from actual measurements made at the Bureau of Standards, on solutions of commercial materials, which may be considered sufficiently accurate for practical purposes, since they agree fairly well with the most reliable scientific data.

The freezing point is taken to be that temperature in the cooling process at which crystals begin to form. The temperature at which the entire mass becomes solid may be several degrees lower than the freezing point for dilute solutions, and 10 or 15 degrees lower for the more concentrated solutions.

As an example, a 30 per cent. solution of denatured alcohol begins to freeze, that is small crystals of ice form, at seven degrees Fahrenheit, but the solution does not freeze solid until a temperature of — five degrees Fahrenheit or lower is reached. Hence a temperature considerably lower than that given in the table for any given percentage of alcohol would not injure the engine or radiator. However, it seems desirable to keep the solution at such a concentration that ice crystals will not form at the lowest temperature to be encountered, since such crystals may interfere with circulation.

Riding On Felloe Band Is Very Destructive to Band and Wheel

This warning to motorists is voiced by L. M. Baker, manager of the rim department of the Bearings Service Co. headquarters, Detroit, Mich., who directs the operation of the rim departments of 22 branches and 600 distributing stations of the Bearings Service Co. He declares that motor car drivers generally prefer to remove the easily demountable rims with a punctured tire, and if an auxiliary tire is unavailable, ride into the garage or repair station on the easily damaged felloe band when they should ride on the rim.



Showing Construction of Wheel with Demountable Rim and Points Where Load Stresses Are Taken.

The felloe band, marked "B" in the illustration, is really nothing more than a reinforcement for the spokes and the wooden felloe which holds the spokes together, and is also a connection between the wheel and the rim, according to Mr. Baker, who says that when abused as described, it is generally damaged beyond repair. Mr. Baker, who has been in the rim business almost since the beginning of automobile rim development, says he would like to know how much wasted time and money misuse of the felloe band has cost the motorists of America—"certainly no small amount," he says, "for I see cars being driven every day on the felloe band, and I always know what the result will inevitably be.

"The motorist cannot escape after thus using the felloe band, without sending the wheel to a wheelwright for a repair job that will last about three days, put him to the trouble of taking the wheel there and back and the expense of at least $10—all because the motorist failed to appreciate that the felloe band should not be used to ride on. The wheelwright in most cases will have to shrink a new felloe band on the wheel, for driving on it will bend it out of shape so that it cannot be straightened successfully so as to retain the rim. In some cases such abuse will ruin the wheel and the motorist will be put to the expense of a new one.

"The flange on the felloe band, against which the inner flange of the rim rests, is what the car really rides on when the rim is removed. This is either flattened out straight or bent so that it is not repairable.

"The better thing for the motorist to do in a case where he cannot replace the tire is to replace the rim and drive to the nearest repair station. The rim has two strong flanges (designated by "A") of equal size and in 99 cases out of 100 will not be injured by such use. If the rim is injured the motorist can easily procure a new one without delay, but he will have a far harder time obtaining a felloe band. In our 22 branches the motorist or garage man can always obtain what he wants in this line or from any one of our 600 distributing stations, but there is still the delay and the expense of having it installed. To save trouble remember to put the rim back on.

Making Exclusive Contracts for the Sale of Goods

By ELTON J. BUCKLEY.

Here is an interesting communication regarding the legality of limited sales contracts:—

> Tyler, Tex.
>
> I beg to hand you inclosed herewith all papers relative to an order for ———, the exclusive sale of which I accepted for my city and placed an order for the same through a Dallas (Texas) jobber, who also has the exclusive sale of this article for the State of Texas. At least when I placed the order with the factory salesman, who was in company with a salesman for the jobber, I was told by the factory salesman that the jobber had the exclusive account for Texas.
>
> Attached to the inclosed papers is a letter from the jobber, which, in a way, declines to acknowledge the exclusive sale contract. They are honorable jobbers; I have had quite a lot of dealings with them and know they are very conscientious.
>
> Now the question that is interesting me is, can I legally make a contract that will absolutely protect me in the sale of a line of goods like this one? If I go ahead and faithfully comply with my agreement to the letter, can I collect damages from the concern making the contract with me when other merchants are allowed to get the goods either direct or through jobbers?
>
> I base my conclusion that such contracts are legal on the fact that I am at the present time, and have been for many years, handling the exclusive selling agency for three lines of goods in my store, and although several attempts have been made by both jobbers and retailers here to bring prosecutons against the concerns with whom I have contracted for these exclusive sale lines, nothing has ever been done by legal proceedings that has interfered with me in the handling of these goods.
>
> Quite a little while ago I handed to the manager of one of our local jobbing concerns an article that appeared in one of our trade journals of a sister state showing a Supreme Sourt decision that where a jobber had refused to sell to a merchant other than the one with whom he has placed his line in an exclusive sale way, and the case was decided in favor of the defendant, the court saying that any firm or corporation owning goods or other things of value, had a perfect right to sell the same to any one to whom they pleased, or they could refuse to sell to any one if they wished to do so.
>
> When the jobber refused to regard the exclusive sale order, I wrote him protesting, and have a reply stating "we would carry out the arrangement with you to the letter, except for the fact that we cannot legally enter into an exclusive sale contract under our state laws."
>
> S. V. G.

The question is: Can a manufacturer or jobber legally make a contract giving a buyer the exclusive right to sell his product in a given territory?

The answer is: He can, if the article involved is in regular commerce, not monopolized by anybody. He can do it with coffee, or tea, or muslin, or sewing machines, or a brand of clothing or an automobile. He can do it anywhere in the United States, including Texas, though the law of that state on the subject is somewhat mixed.

The only state in the Union, so far as I know, which has a statute forbidding exclusive sales contracts is Texas, but the courts don't all seem to follow it. In one case involving the sale of a brand of beer a Texas court held an exclusive contract void under the act which declared that "any agreement or understanding to refuse to buy from or sell to any other person any article of merchandise, produce or commodity, is a conspiracy in restraint of trade."

But in another case in Texas, also involving the sale of a brand of beer, another court held that it was not illegal under the very same act.

No other state has such an act, so far as I have seen, and the general law on the subject is accurately expressed by the following decision in an automobile case, which holds, incidentally, that such contracts aren't even against the law of Texas:—

> The Cole Motor Car Co., an Indiana corporation, entered into a contract in Indiana with a citizen of Texas for distribution of its car in certain designated counties in Texas. The contract provided for invoicing to the distributor at prices fixed in advance by the company, and a commission to be paid to the distributor on each car sold. The contract also contained a clause to the effect that the distributor should have the "exclusive right to sell Cole motor cars" in the territory named. In a suit against the distributor for a balance due on cars delivered to him, a defense was set up that territorial restriction in the contract rendered it void as violative of the Texas anti-trust law. It held that the transaction constituted a consignment, involved interstate commerce and must be determined by the anti-trust laws of the United States rather than the anti-trust laws of Texas. The conclusion is reached that neither of these laws is violated. The agreement did not restrict trade. There are a multitude of other companies from whom purchasers can readily obtain motor cars varying in little, if anything, from the perfectibility of the car made by the plaintiff company. It is common knowledge that most, if not all, of such motor companies avail themselves of similar arrangements.

It is clear, then, that A, a manufacturer in New York state, and B, a dealer in Pennsylvania, can enter into a legal contract by which B is to have the exclusive right to sell A's product in B's territory. There is not the slightest doubt about the perfect legality of such an agreement, provided no monopoly is involved. Monopoly doesn't mean a monopoly of a brand—every owner of a brand has that—it means monopoly of the entire supply of a commodity. There would be a monopoly if a manufacturer making and controlling 90 per cent. of all automobiles made in this country should make exclusive sales contracts.

The Cole motor case was decided under the Clayton anti-trust act, the latest national law against restraint of trade. The Clayton act provides that it shall be unlawful to sell on condition that the buyer shall not sell competitive goods, "where the effect may be to substantially lessen competition or tend to create a monopoly in any line of commerce." But in another section the Clayton act protected exclusive sales contracts which did not restrain trade by saying, "nothing herein contained shall prevent persons engaged in selling goods, wares or merchandise in commerce from selecting their own customers in bona fide transactions not in restraint of trade."

So much for exclusive sales contracts made between parties in different states and thus under Federal law. As to the status where the parties making such contracts are in the same state, I believe it is equally clear that A and B could make a legal contract if they were in the same state, though as I have said, the law in Texas is not uniform. There are many cases which say so, and practically none that say the contrary, unless there is some evidence of an intent to build up a monopoly, not of the brand, as I have said, but of the general supply of something.

In other words, a man has a complete monopoly of "silver" corn, or "nobby" clothes, or the "Ford" automobile. He can sell whom he likes and as many or as few as he likes. Nobody can question his right to do so, where the only trade he restrains is the trade in his own brand.

(Copyright, October, 1918, by Elton J. Buckley.)

Mack 7½-Ton Tractor and Fruehauf 12-Ton Semi-Trailer Used by the Detroit Creamery Co., Detroit, That Carries Capacity Loads and Is Driven 50 Miles a Day at a Cost of 30 Cents a Mile and 2½ Cents a Ton-Mile.

Semi-Trailer Shows Large Haulage Economies

Exceptional economies are obtained by the Detroit Creamery Co., Detroit, a concern doing a large business in dairy products, with a Mack 7½-ton tractor and a Fruehauf semi-trailer that has a load rating of 12 tons, which is believed one of the largest units used for highway haulage. The tractor is a standard type, having the usual driver's cab, and the semi-trailer is unusually large, having combination panel and rack sides with spaces about midway between the forward and rear sections that are fitted with stakes that are removable for loading or unloading.

The body can be used open, in the event that the loads are bulky, or it can be covered with a tarpaulin, as is shown in the accompanying illustration, for protection of the freight in the event of storm or extremes of temperature. There is ample space under the cover for handling a load.

The outfit is used for hauling milk between different stations in the city and is usually driven in work that necessitates straight hauls of six miles, or 12 miles to the round trip. In one direction the freight is 250 cans of milk, which weighs approximately 12 tons, and in the other the freight will average 4¼ tons, which is equivalent to a constant load of 8⅛ tons during the entire service time. The tractor makes four trips each way a day, or a total of 48 miles, and it hauls 65 tons of freight, or 390 ton miles.

The statement made by William Williams, superintendent for the company, shows that the cost of operation of record is 30 cents a mile, or $15 for the distance driven each day, and this may be assumed to cover every item of expense, although the statement "debited cost of operation" might imply that all is not included. The figures given by Mr. Williams for general information show the work done by the vehicle and the cost, and are as follows. Mr. Williams says: "We believe that the trailer transportation method is the most economical for either long or short hauls."

Number of trips per day	4
Number of miles per day	50
Tons handled one way	48
Tons handled on return	17
Average time per round trip, hours	2½
Debit cost of operation, per mile	30c
Miles per trip, loaded	6
Cost per trip	$1.30
Average load per trip, tons	12
Cost per ton per trip	15c
Cost per ton per mile	2½c

BAUM CHANGES POSITIONS.

J. E. Baum, for a considerable period in the service department of the Nash Motors Co., at Kenosha, Wis., has been appointed manager of the service department of the Philadelphia Nash Motors Co., agent for Nash trucks and cars in Philadelphia.

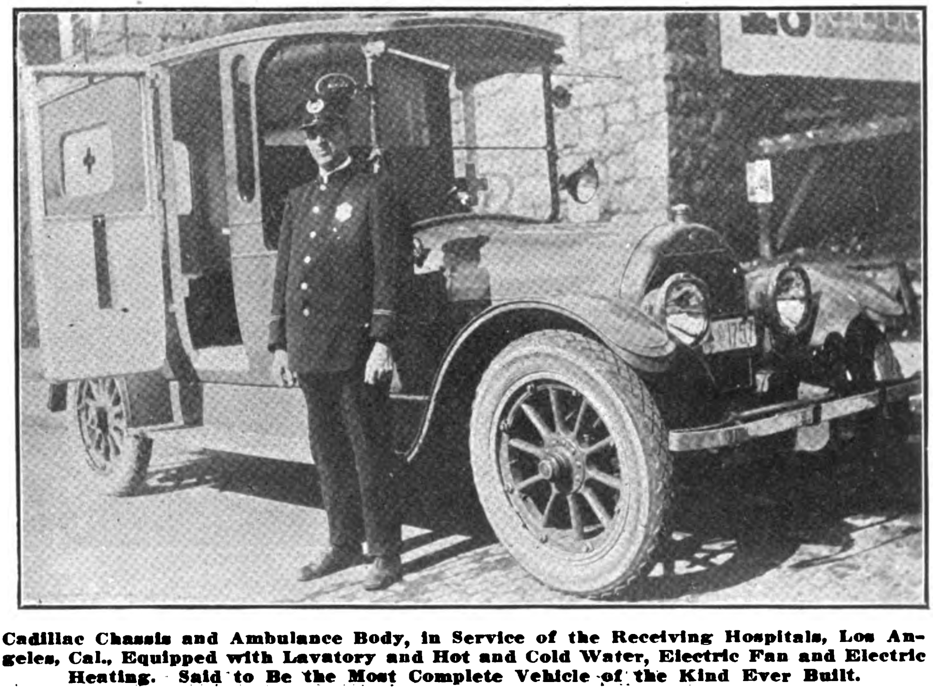
E. M. Benedict of Toledo, O., has been appointed general manager of the Jackson Munitions Co., Jackson, Mich.

Hospital Ambulance with Emergency Equipment

Designers of ambulance bodies have given in some instances much attention to the development of types that will make for the convenience of the driver and physician or attendant, and for the comfort of the patients. Cleanliness is extremely important, and aside from this requirement nearly all ambulances have been merely conveyances in which the attention given an occupant could be extremely limited, the supposition being that whatever was done would be emergent and would be incidental to thorough treatment at the hospital.

The Receiving Hospital at Los Angeles, Cal., a large institution where many accidentally hurt are treated, and which affords urgent medical attention for those who may be in need, has now in service what is said to be the finest ambulance ever built. The body is installed on a Cadillac chassis, which can be driven 70 miles an hour if speed is demanded by the condition of the patients, and it is equipped with a lavatory, with hot and cold water, so that the physician accompanying it can perform whatever surgical work he may deem best. There is an electric fan to lower temperatures if necessary and an electric heater to increase them when desirable.

Considerable ingenuity was exercised to equip the body. The water is heated almost instantly by driving the exhaust from the engine through a coil, and the electrical equipment has been increased in size to afford power for heating and for driving the fan. The body is entered at the side or at the rear, and the steps are a folding type that are dropped as the doors are opened, but at other times are out of sight in the body structure.

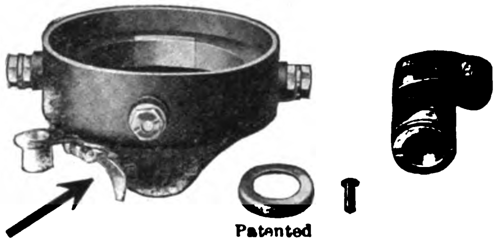


Cadillac Chassis and Ambulance Body, in Service of the Receiving Hospitals, Los Angeles, Cal., Equipped with Lavatory and Hot and Cold Water, Electric Fan and Electric Heating. Said to Be the Most Complete Vehicle of the Kind Ever Built.

THE J & B TIMER STANDS UP —AND ALWAYS WORKS

The rotor is so satisfactory that no change has ever been made in its design. Will outwear any other timers. Easily oiled through a patented dust-proof oiler. Simply constructed. "Stands the test of time."

Price $1.50



Patented
J & B Timer Housing has this type oiler

J & B Manufacturing Co.

PITTSFIELD, MASS.

Radiator Insurance

SEAMLESS
HELICAL TUBE
COOLING SECTIONS

are guaranteed for the life of the truck or tractor on which they are installed. They are perpetual insurance against radiator trouble. They satisfy all of the exacting requirements of the most critical engineers. They are the last word in modern radiator construction. ¶Ask us for information. ¶Our Engineering Department is at your service.

Helical tube construction is accepted as the best by the leading truck and tractor makers.

We are now equipped to produce complete cast case radiators, or cooling sections only, if preferred.

Sole Manufacturers

Rome-Turney Radiator Co.
Rome, N. Y., U. S. A.

Government Is Urging Rural Express Delivery

For the purpose of encouraging the establishment of rival motor truck routes and regular motor truck service between cities and towns, the Federal Bureau of Markets has arranged to give its sanction to such truckmen as are proved to be worthy, and who desire to work more closely with the government in developing, stabilizing and standardizing this business. Operators who agree to work according to most approved practises and to conform to the general requirements of the Bureau of Markets are to be given the advantage of advice and information developed through the bureau investigations.

Large metal signs for display on trucks will be furnished to operators meeting the requirements. These signs will read, "The owner of this truck is cooperating with the Bureau of Markets, United States Department of Agriculture." The operator also will be privileged to use this sentence on his stationary and in advertising.

Requests for application blanks, to be used in obtaining the signs, should be made to the chief of the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

Through its cooperation with motor truck operators the bureau hopes to make it easy to place in proper hands such advice and information as it may secure; to act as a medium for distribution of information among operators; to stabilize the rural motor business by requiring adherence to certain business practises, and to give to reliable operators the business advantage of working cooperatively with the Bureau of Markets.

Truck operators who desire to cooperate with the bureau must agree to maintain dependable service and schedules; charge just rates based on cost plus a reasonable profit; keep satisfactory records of operating costs and furnish certain of them to the bureau; use uniform bills of lading approved by bureau, and provide adequate insurance for shipments.

No attempt to exercise arbitrary authority or to insist on practises detrimental to proper and profitable conduct of motor truck routes will be made, says the announcement of the bureau.

SHUART JOINS DENBY TRUCK CO.

The executive staff of the Denby Motor Truck Co., Detroit, has been augmented by H. H. Shuart, who was manager of the Detroit Automobile Dealers' Association, but retired when that organization suspended its activities because of patriotic reasons.

The Michigan Drop Forge Co., Pontiac, Mich., declared a monthly dividend of 15 cents a share for October and an additional dividend of 10 cents a share on common stock.

COLLEGE WILL TRAIN MEN FOR FOREIGN TRADE.

A foreign trade school that will train men to engage in and specialize this branch of commerce has been opened by the division of vocational subject and civic administration of the College of the City of New York, and the purpose is to have men ready to deal with the great diversity of subjects that will be met with in exploiting trade abroad. If the object of the promoters is realized this school will prepare students whose services will be available for commercial and industrial interests.

The instructors in the school include W. H. Brittain, secretary and treasurer of the American Steamship Association; H. C. MacLean, district manager for the United States Bureau of Foreign and Domestic Commerce; S. S. Brill, former special agent for the same bureau; W. W. Orr, assistant secretary of the National Association of Credit Men, and E. E. Judd of the foreign department of the Guaranty Trust Co., New York, N. Y.

NEW REPUBLIC TRUCK SERVICE HEADQUARTERS.

The service organization of the Republic Motor Truck Co., Alma, Mich., has been very greatly developed, this being accomplished by the location of what may be termed regional service headquarters in New York City, Chicago, Kansas City, Los Angeles and Atlanta. From these centers the parts and units required by the branches and the 1300 local service stations of the country will be distributed, and organization and system have been determined which will afford quick communication and delivery.

WILL CONTINUE BUILDING GLOBE TRUCKS.

The real estate, shops and equipment of the Globe Motor Truck Co., East St. Louis, Mo., has been bought at auction sale by John T. Soy, a stockholder in the company. The property consists of several buildings on a tract of land 226 by 563 feet, adapted for manufacturing, with machine and hand tools. Statement is made by Mr. Soy that he will continue the production of Globe trucks, but no announcement of plans or policies has as yet been made.

McDONALD IN CHARGE OF STOUGHTON WORKS.

Because of the illness of George Ford, manager of the Mandt vehicle branch of the Moline Plow Co., at Stoughton, Wis., B. T. McDonald, manager of the Poughkeepsie, N. Y., works of the company has been temporarily transferred to Stoughton, because he is familiar with its operations, having been manager before he was located at Poughkeepsie.

The Hercules Motor and Manufacturing Co., Canton, O., has appointed E. H. Geyer its general sales manager.

METAL WHEEL MANUFACTURERS MEET AT DETROIT.

A meeting of the Automotive Metal Wheel association, an organization of manufacturers of metal wheels, recently held at Detroit, was attended by about 25 representatives of concerns holding membership. The principal object of the meeting was to discuss means whereby the members as an industry might further assist the government in the prosecution of the war, and among the subjects discussed was that of standardization.

The officers of the association are: R. H. West of the West Steel Casting Co., president; R. P. Flower of the Standard Steel Casting Co., vice president; W. E. Burns of the Michigan Malleable Iron Co., treasurer; G. L. Lavery of the West Steel Casting Co., secretary. The executive committee is composed of H. A. Coffin of the Detroit Pressed Steel Co., R. D. Webster of the Wire Wheel Corporation, Buffalo, chairman of the wire wheel division, and George Walther of the Dayton Steel Casting Co., chairman of the cast wheel division.

ARMY SHIPS 5000 TRUCKS TO FRANCE IN MONTH.

The enormous requirements of the American army in France for motor transport is little realized. These will increase as the army is added to. During September 5000 trucks of different types were shipped, according to Acting Secretary of War Benedict Crowell, some of them on the decks of vessels, but a very large number partly assembled to economize space.

RISBERG CONTROLLER OF REPUBLIC INTERESTS.

The Republic Motor Truck Co., Alma, Mich., which is claimed to be the largest manufacturer of power trucks in the world, has appointed M. M. Risberg controller of the company and the company's subsidiaries, which include the Republic Motor Truck Co. of California, the M. & S. Corporation of Detroit and the Torbensen Axle Co., Cleveland, O., and Mr. Risberg has named W. G. Ralph as his assistant.

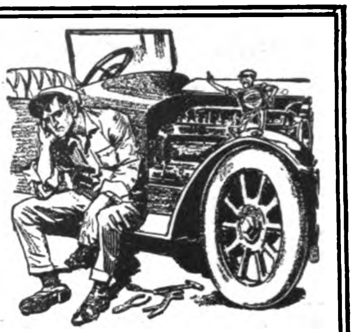
EMERY IS MANAGER OF DETROIT PLANT.

With the retirement of Charles B. Bohm as manager of the Detroit plant of the Aluminum Casting Co., a position he held for several years, Howard Emery, who was manager of this division and later made manager of the company's works at Manitowoc, has been transferred to Detroit to fill the vacancy.

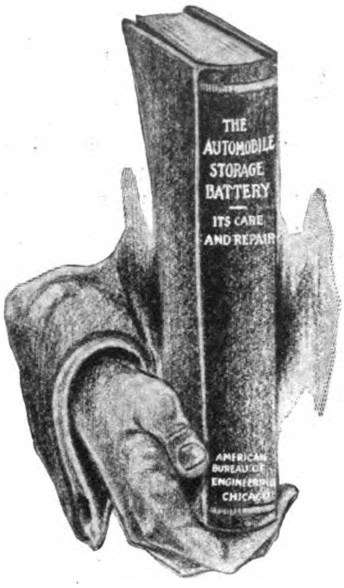
R. F. Dyer has retired as assistant sales manager of the Aluminum Castings Co., Detroit, and has been succeeded by Arthur Birge, who was manager of the Ames Tool and Shovel Co., Anderson, Ind.

Stumped=Beaten

And By a Storage Battery, Too.



"Charged all O. K. but didn't hold up—Tested out on the voltmeter and hydrometer all right but, when used, the battery charge flattened right out. I don't know what can be the matter."


THE AUTOMOBILE STORAGE BATTERY
ITS CARE AND REPAIR
AMERICAN BUREAU OF ENGINEERING CHICAGO

Ever think that one set of plates might be defective—not doing its duty and thus "kill" the charge? Test each set and see which needs fixing or replacing. Test them right in the battery with an AMBU CADMIUM TEST OUTFIT, with specially calibrated, positive and negative voltmeter. That will tell you exactly.

You Will Find The Answer Here

This book—technical, in non-technical terms—tells everything that may be the trouble with a storage battery and the way to fix it—tells how to keep it in good condition all the time.

Automobile Storage Battery—Its Care and Repair

Leather bound of about 300 pages, so written by experts that everyone can understand. Opens a new position for you—a better position—if you know all this book can teach.

Every garage office should have one for reference. Five days examination. If not the best thing of its kind return it for your money. $5 postpaid. Sold by jobbers or order direct.

American Bureau of Engineering
1032 Wabash Ave. CHICAGO

Guaranteed Bearings
We Exchange Rebuilt Bearings for old or worn ones BILODEAU BALL BEARINGS WORKS

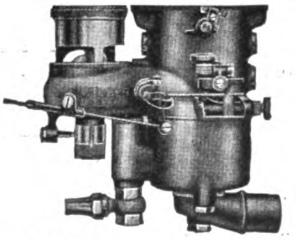
ECONOMY *Plus* EFFICIENCY

These words mean great strength toward winning the war. They form our policy—and by the standard of that policy we are continually schooling garage men and repair men to avail themselves of our exceptional service of **Rebuilding Worn Bearings.**

Bilodeau Rebuilds All Makes of Worn Bearings, to Run as True as When New.

Write at once for catalog, listing types, sizes and prices of standard designs. Trade discounts confidential.

BILODEAU BALL BEARING WORKS
66 Stanhope Street, BOSTON, MASS.



YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

More Mileage—More Power—More Speed

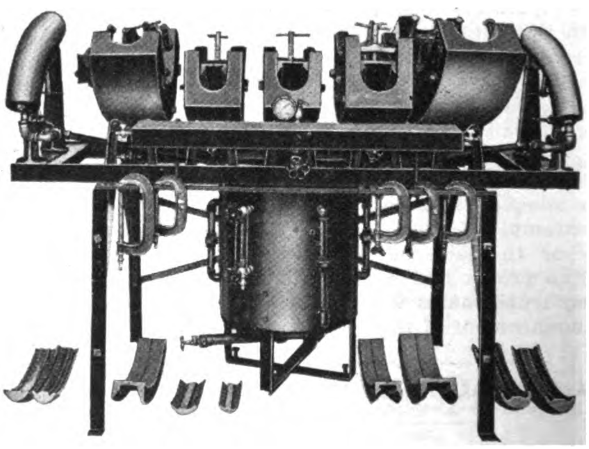
Get him to try it for 15 days. Satisfaction guaranteed.

WEBBER MANUFACTURING COMPANY
Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway

---

The Big Money-Making Business That Is Not Over-Crowded.

You open a TIRE REPAIRING shop—hang out your sign—pass around your cards and in comes an avalanche of business. Big profit.



VANDERPOOL VULCANIZER

5 Cavity Model has capacity of $100 worth of work every 10 hours. Repairs tires upon correct principle exactly as they were made at the factory. Endorsed by the leading tire manufacturers and used in preference to all others by veteran tire repair men. Vanderpool Outfit in all sizes up to 5 cavity. Special low price. Write for catalog and valuable free book—**TIRE REPAIRING MANUAL.** No obligation.

In answering address Dept. H 3.

THE WM. VANDERPOOL CO., Springfield, Ohio.

DIXON'S = MORE MILEAGE AND POWER WITH LESS UPKEEP
DIXON'S GRAPHITE GREASE No. 677 FOR TRANSMISSIONS AND DIFFERENTIALS

The Dixon Platform

More power—less repairs and lower upkeep—a quieter, longer-running car. The saving of wear, time and money. All are assured when you use

DIXON'S GRAPHITE Automobile LUBRICANTS

The selected flake graphite in them prevent troublesome, expensive wear.

Write for Dixon's Dealer's Deal No. 49-G.

Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

ESTABLISHED 1827

Anti-Borax WELDING FLUX

OUR Brazing and Welding Fluxes for Blacksmith work and Acetylene or Electric Welding of all kinds of metal are considered by all users to be the best on the market. Order Anti-Borax Fluxes and get the best results.

MANUFACTURED BY

Anti-Borax Compound Company

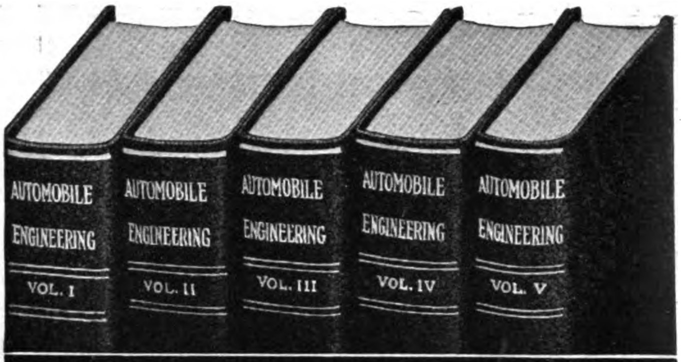
FT. WAYNE, INDIANA.

CYLINDER HEAD GASKETS for all Makes of Cars

Immediate deliveries from BOSTON STOCK

MITCHELL & SMITH INC.

1090-1092 COMMONWEALTH AVE. BOSTON, MASS


AUTOMOBILE ENGINEERING VOL. I
AUTOMOBILE ENGINEERING VOL. II
AUTOMOBILE ENGINEERING VOL. III
AUTOMOBILE ENGINEERING VOL. IV
AUTOMOBILE ENGINEERING VOL. V

AUTO BOOKS

New 1918 Edition

7¢ A Day

Now ready for you—this marvelous five-volume Library on Automobile Engineering! The newly written reference work covering the construction, care and repair of pleasure cars, motor trucks and motorcycles. The most complete and advanced information in Ignition, Starting and Lighting Systems, Garage Design and Equipment, Welding and other Repair Methods. Five wonderful volumes beautifully bound in flexible covers, gold stamped. 2400 pages (5½x8¾ in.), 2000 illustrations, tables and explanatory diagrams. This great automobile library, combining the knowledge of the greatest experts in the business, now yours on payments so small as to average only 50c a week, or only 7c a day.

PARTIAL LIST OF CONTENTS
- Explosion Motors
- Welding
- Motor Construction and Repair
- Carburetors and Settings
- Valves, Cooling
- Lubrication
- Fly Wheels
- Clutch
- Transmission
- Final Drive
- Steering Frames
- Tires
- Vulcanizing
- Ignition
- Starting and Lighting Systems
- Wiring Diagrams
- Shop Kinks
- Commercial Garage Design and Equipment
- Electrics
- Storage Batteries—Care and Repair
- Motorcycles
- Commercial Trucks
- Glossary

SHIPPED FREE

No money in advance. Not a cent. See the books in your own home or shop absolutely free, at our risk. Read them, examine them, study them for seven whole days before you need decide whether you want to keep them or not. Send no money to get the books for free examination. Make no deposit. Assume no obligation. Simply put your name and address on the coupon below and mail it to us. The books will be promptly shipped to you for your examination. Take seven days to ascertain their value to you. If you are not more than delighted with them and do not consider the books one of the biggest bargains you ever made, just send them back to us and you won't owe us a penny. If you value the books and see them to be worth many times their price to you, send only $2 in seven days and then $2 a month until the special introductory price of $17.80 has been paid.

Help Win the War
BY STEADY WORK
FULL TIME
SIX DAYS A WEEK
U. S. Dept. of Labor
W. B. WILSON
Sec'y of Labor

Send No Money

Every repair man, every auto mechanic, every auto driver and owner will prize this magnificent library. Even the most experienced veteran in the business will find a wealth of practical information and help in this work. Prove their value to yourself at our risk. See the books without cost or obligation to you. Not a cent do you risk by sending the coupon. So do it today—NOW—while this special offer is open. **You have nothing to lose, and much to gain.**

FREE CONSULTING SERVICE With each set we give you free, a year's Consulting Membership in the American Technical Society. The regular price is $12. Put your problems up to our Staff of Experts, for one entire year.

American Technical Society
Dept. A-7768, CHICAGO, ILLINOIS

American Technical Society,
Dept. A-7768, Chicago, Illinois.

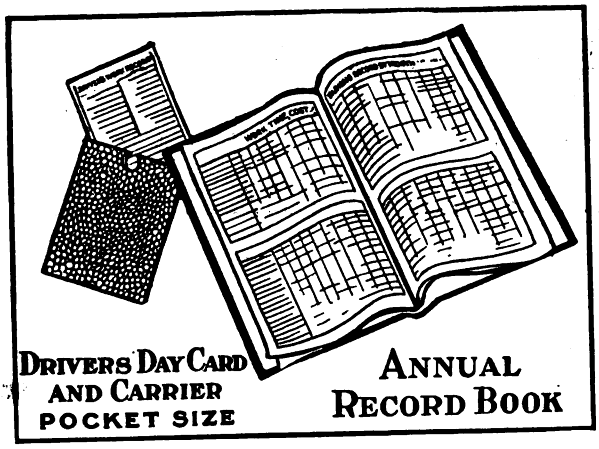
Please send me the 5-volume Automobile Engineering for 7 days' examination, shipping charges collect. If I decide to buy, I will send $2 within 7 days and the balance at $2 a month until the $17.80 has been paid. Then you send me a receipt showing that the $25.00 set of books and the $12 Consulting Membership are mine and fully paid for. If I think I can get along without the books after the seven days' trial I will return them at your expense.

Name ....

Address ....Reference ....

A Business Man Must Know His Operating Costs

Very few truck owners know what it costs to operate their trucks. Hardly any know what their vehicles actually earn.


DRIVERS DAY CARD AND CARRIER POCKET SIZE
ANNUAL RECORD BOOK

Send us $6 and we will ship by express collect a complete motor truck record system. This includes as well an annual subscription to MOTOR TRUCK, the leading authority on highway haulage.

This system includes an annual record book, 350 day cards and a driver's carrier for the day cards. The system is complete and good for one year. Nothing more is needed or necessary.

No need to ask for details. All instructions are supplied with the system. It will fit in any business, good for any make or type of truck and it is 100% efficient.

Anyone can start and maintain this system. A girl or boy clerk can keep the records of one or 100 vehicles. One simple form that you can buy or have printed would cost more than $6.

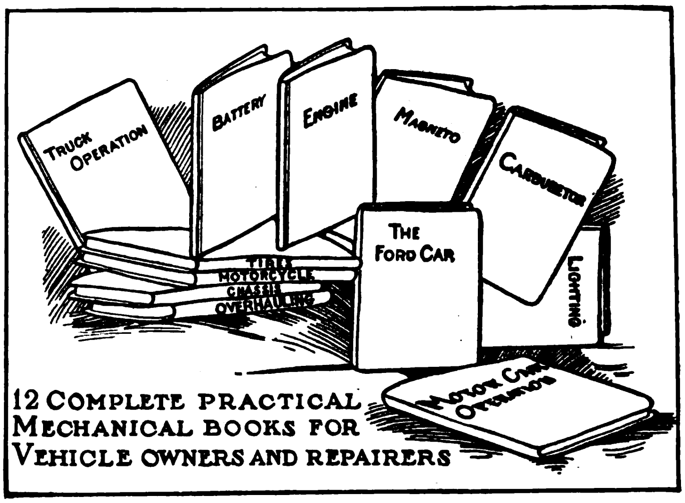
If you want to keep a POSITIVE detailed record of your truck costs and a POSITIVE detailed record of your truck earnings, this is the one complete, simple, practical and almost self-operating system compiled.

Why not start today and operate your trucks on a business basis. You never can do this until you KNOW your costs.

Record Department

MOTOR TRUCK

Pawtucket, Rhode Island.



Engine	35c	Chassis	25c
Magneto	35c	Lighting	50c
Carburetor	35c	Operation	50c
Battery	35c	Overhauling	50c
Tires	25c	Motorcycle	35c

Automobile Journal Publishing Co.

Times Building, Pawtucket, R. I.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUG. 24, 1912, OF

THE ACCESSORY AND GARAGE JOURNAL,

PUBLISHED MONTHLY AT PAWTUCKET, R. I.

For October 1, 1918.

State of Rhode Island, County of Providence.

Before me, a Notary Public, in and for the state and county aforesaid, personally appeared William H. Black, who, having been duly sworn according to law, deposes and says that he is one of the owners of the Accessory and Garage Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publicaton for the date shown in the above caption, required by the act of Aug. 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

FUBLISHER, WM. H. & D. O. BLACK....Pawtucket, R. I.
EDITOR, E. K. BROWN..................Providence, R. I.
BUSINESS MANAGER, WM. H. BLACK..Pawtucket, R. I.

2. That the owners are:

WM. H. BLACK..........................Pawtucket, R. I.
D. O. BLACK...........................Pawtucket, R. I.

3. That the known bondholders, mortgagees and other security holders owning or holding one per cent. or more of total amount of bonds, mortgages or other securities are:

M. J. BLACK, Mortgagee.................Pawtucket, R. I.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

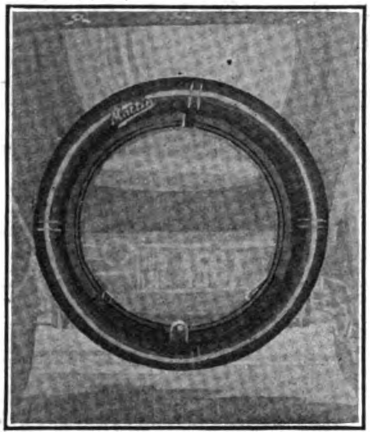
(Signed) WILLIAM H. BLACK, Co-Partner.

Sworn to and subscribed before me this 4th day of October, 1918.

(Signed) THOMAS BESWICK, Notary Public.
[Seal] (My commission expires June 30, 1920.)

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.
Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts.
The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

Coil Replacement 90% Big Profits

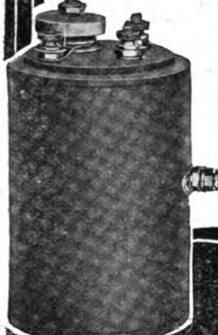
Fully 90% of cars in use are coil equipped. To the enterprising service man, this fact will present a wonderful opportunity for profit on coil replacement business, especially if he is stocked with

JEFFERSON COILS

"The only complete Interchangeable Line of Battery Replacement Coils."

For Jefferson Coils will enable you to give every customer instant service. No big, varied, costly ever-changing stock of coils is required.

Jefferson Coils prepare you for every emergency. A small stock of Jefferson Coils can be adapted to fit all makes and models of battery equipped cars. Flexible caps, terminals and brackets make these coils answer every requirement.



Jefferson Coils are of highest quality; reliable and long lasting. Fully guaranteed.

SEND FOR COIL LIST

showing list of all cars that are Coil-Equipped and the types of Jefferson Coils and Brackets to be used as Replacements.

JEFFERSON ELECTRIC MFG. CO.
429 So. Green St., Chicago

JEFFERSON
Battery Ignition Coils

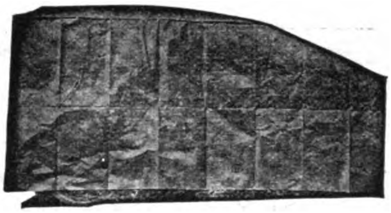
Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

Strengthen Your Advertising Literature

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

Ross-Gould
Mailing
Lists St. Louis



KENNEDY AUTO STORAGE COVERS

Furnish efficient and economical protection for cars in dead storage. They are made of heavy, durable paper in standard sizes to fit any cars.

MADE ONLY BY

THE KENNEDY CAR LINER & BAG CO.
SHELBYVILLE, IND.

BURKE
AUTOMOBILE PRODUCTS

THE BURKE Condenser

Replaces the radiator cap; prevents evaporation of water or anti-freeze mixture from cooling system. 1,000 miles on same water. Distills water continuously. Protects passages of cooling system from corrosion and scale. Makes use of alcohol as anti-freeze medium practicable and inexpensive.

Little Giant Model

Write for Literature.
Burke Automobile Products.

Ford Model

AUTOMOBILE DEVICES COMPANY
PHILADELPHIA, U. S. A.

B
BUNTING BEARING BRONZE
B.B.B.CO.No1

Same quality as our finished bronze bushings and bearings used by manufacturers the country over.

Your repair stock is not complete without it.

All leading jobbers
Ask for catalog N

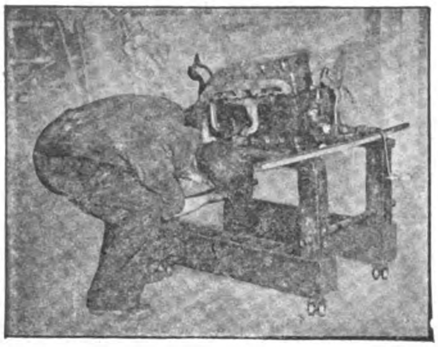
The Bunting Brass & Bronze Co.

727 SPENCER STREET
TOLEDO, OHIO.

CORED BARS

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3½
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15⅛
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20



THE OLD WAY
Expensive and Inefficient

CONTINENTAL AUTO PARTS CO.
Continental
KNIGHTSTOWN, INDIANA U.S.A.

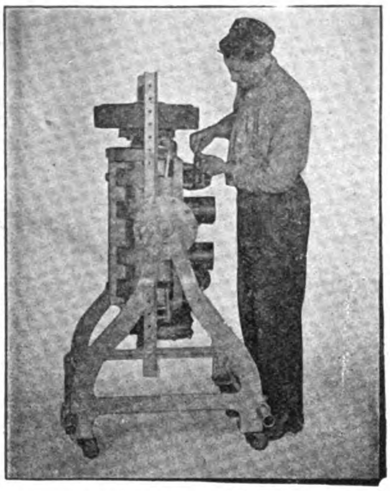
Would You Read Your Paper Upside-down?

Why ask your mechanics to stand on their heads to repair a motor?

—DON'T—

Install Continental Motor Stands Today

Catalogue on request



THE CONTINENTAL WAY
Saves Time, Money and Labor

King Safety Tail Light takes the fear out of night driving—

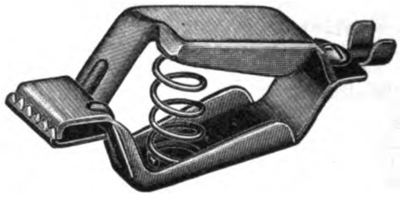
Equip your car with one NOW

For particulars write

KING-BULL MFG. CO.

123 E. Ontario St.
Chicago.

UNIVERSAL BATTERY CLIPS



Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals. **No. 21-A—lead plated—1½" spread of jaws. Sample mailed postpaid for 15c in stamps.**

Single Lots, Each 20c. Lots of 10, Each 15c. Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.

NEW DEPARTURE BALL BEARINGS

Strength
Stamina
Service

The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

WM. B. SCAIFE & SONS CO.
PITTSBURGH, PA.
BRAZED AIR TANK

SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

ADAMSON

VULCANIZERS

The Only Complete Line

MODEL "E" 5-Minute Vulcanizer repairs tube punctures—Price $1.00 complete.
MODEL "U" repairs tread cuts and abrasions, mends inner tubes—Price $2.00 complete
MODEL "T" makes ordinary tube repairs—Price complete $1.50.
MODEL "S" for garage use, makes tube repairs up to 12 inches—Price complete $12.00.

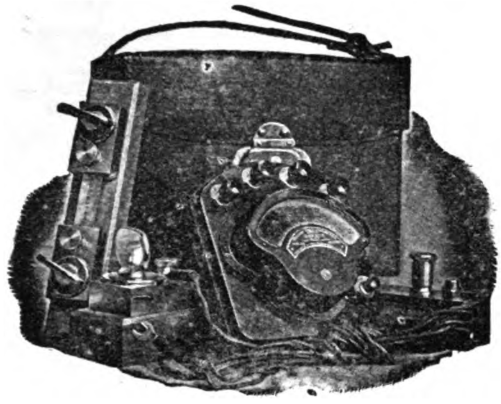
Sold by Jobbers and Dealers Everywhere.

ADAMSON MFG. CO., - - - East Palestine, O.

TRACTOR WORLD

Monthly 20c the Copy $2 the Year

A Tractor Journal devoted to the tractor industry and trade
Published by
The Automobile Journal Publishing Company
PAWTUCKET, RHODE ISLAND



23 Branch Offices in the Larger Cities

Weston

Model 280

GARAGE TESTING INSTRUMENT

This is the most practical Electrical Equipment you can install. It enables you to locate electrical troubles in motor cars and apply the proper treatment to remedy them.

This Weston Instrument is considered indispensable by thousands of garage owners who use it. A very large demand has resulted. No competitive make of instrument is nearly so comprehensive in scope or dependable in operation.

In normal times we can promptly fill orders, but under present circumstances, when government demands are exceedingly heavy and our raw materials can be used only for government work, garages should either furnish us with government contract numbers, when available, or place their orders subject to preferential delivery when it is possible for us to manufacture and make shipment of commercial orders.

WESTON ELECTRICAL INSTRUMENT CO., 103 Weston Ave., Newark, N J.

AUGLAIZE HOIST

LABOR SAVING

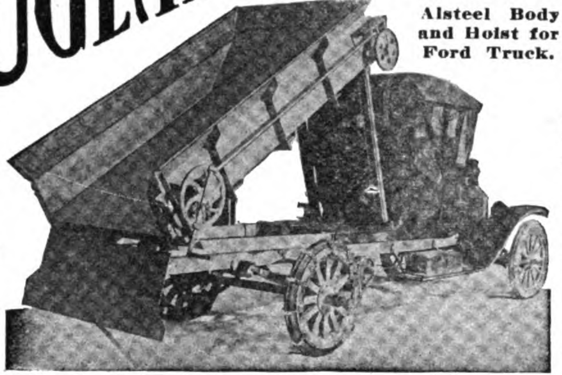
The Quadruple Worm Gear Easily Turns the Trick

A boy can raise 4 tons in three minutes with the Auglaize Hoist. Weighs less than any other and covered with a liberal guarantee. Built in sizes up to 5 tons. **Prices up to 1½ tons, $83.00; from 1½ to 5 tons, $109.00.**

AUGLAIZE ALSTEEL BODIES

Staunchly constructed of all steel and guaranteed against defective material and workmanship. Will carry 50% overload.

Prices range from $150.00 to $225.00, according to size.



Alsteel Body and Hoist for Ford Truck.

TIME SAVING

Auglaize Special Alsteel Body and Hoist for Ford Truck

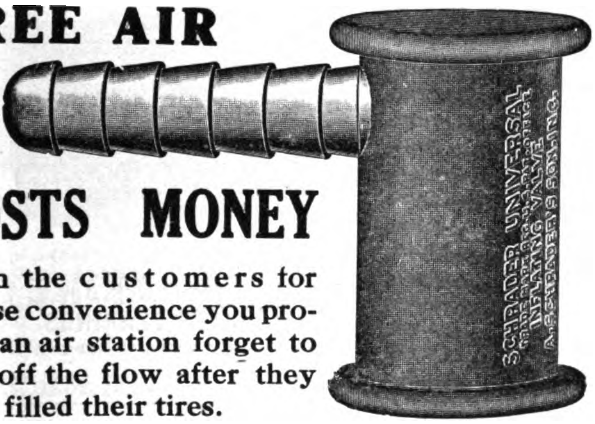
Carrying capacity from 2700 to 3000 lbs. of gravel, sand, crushed stone or coal; approximate weight, 550 lbs.

Price, $187.50. Equipped with Auglaize Powerful, Speedy, Light-Weight Hoist.

Dealers allowed a liberal commission and given selling cooperation. Write at once for catalog and sales plans.

THE AUGLAIZE MOTOR CAR CO.
New Bremen - - - Ohio.

FREE AIR



COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Automatic Inflating Valve

to your air hose.

Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve.

Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.50 in U. S. A.

W. S. S.

We	Suggest	Stamps
War	Savings	Stamps
Without	Shells	Soldiers
Would	Soon	Succumb
War	Savings	Stamps
Will	Supply	Soldiers
With	Shells	

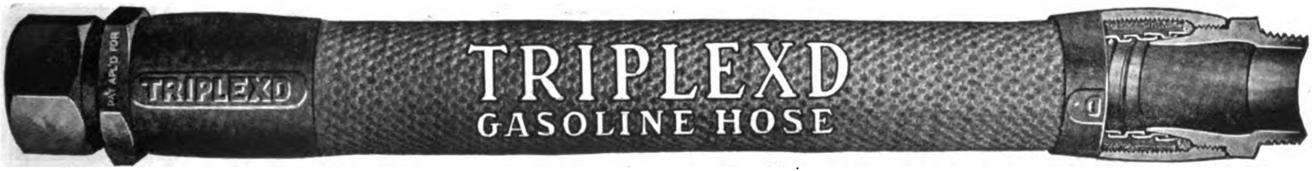
Buy all you can and help to win the war.

Manufactured by **A. SCHRADER'S SON, Inc.**
800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition "There's a Reason."

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to owners of pleasure cars.

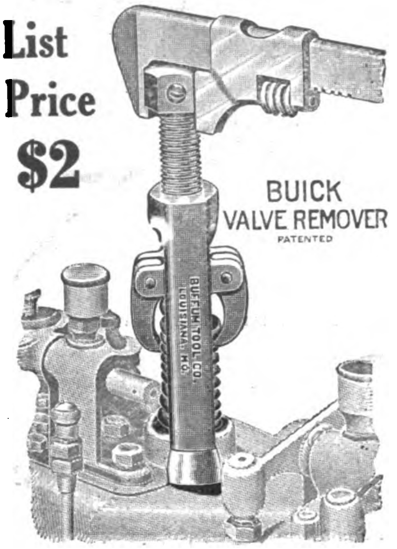


METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

Write to Dept. J-10 for illustrated matter and prices.

BUICK VALVE REMOVER

List Price $2



The Buffum Buick Valve Remover is a practical time and labor saving tool for repairers and owners.

It is quick, sure and safe and eliminates all chance of bending washers, valve stems and valve springs, or breaking the valve cage. It lifts the valve up straight with a strong positive pull.

The Buffum will fit any Buick engine with the valves in cages. Light, compact and occupies the same space as an ordinary wrench and can be carried in any tool box.

Jobbers and dealers, send for latest catalogue of Buffum car specialties and tools for auto repairers and owners.

BUFFUM TOOL CO., LOUISIANA MISSOURI

The United States line comprises 20 different numbers in Two Stage and Single Stage Types, and various individual equipment adapted for forming combinations of almost unlimited kinds and capacities.

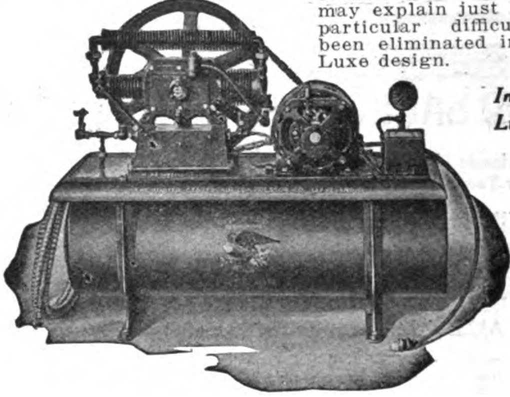
THIS IS THE U. S.

De Luxe Compressor

Perfect in Design, Material, Workmanship and Finish

THIS machine embodies every feature recognized as good air compressor design, plus several improvements distinctly its own. This combination has gained for it recognition as the most practical compressor available and placed it in a majority of the better garages, tire shops and gas stations.

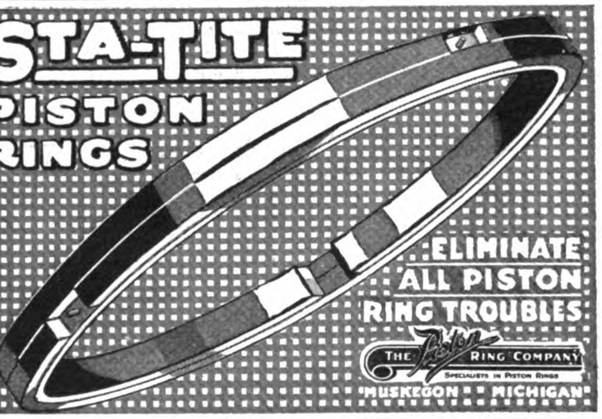
The 14 definite points of superiority are explained in detail in our literature, but those who have had experience with air compressors are invited to tell us their specific troubles in order that we may explain just how that particular difficulty has been eliminated in the De Luxe design.



Interesting Literature Mailed Upon Request

THE UNITED STATES AIR COMPRESSOR CO.
6538 Carnegie Ave. Cleveland, Ohio

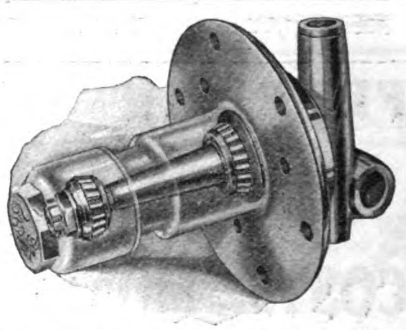
STA-TITE PISTON RINGS



ELIMINATE ALL PISTON RING TROUBLES

THE Piston RING COMPANY
SPECIALISTS IN PISTON RINGS
MUSKEGON - MICHIGAN

STOP FORD BEARING TROUBLE



NATIONAL BEARINGS SERVICE CO.
WRIGHT TAPER ROLLER BEARINGS
Replacements for all Standard types of Bearings
PHILADELPHIA NEW YORK

SPRINGS YOU ARE SURE OF

No uncertainty as to service or wear of

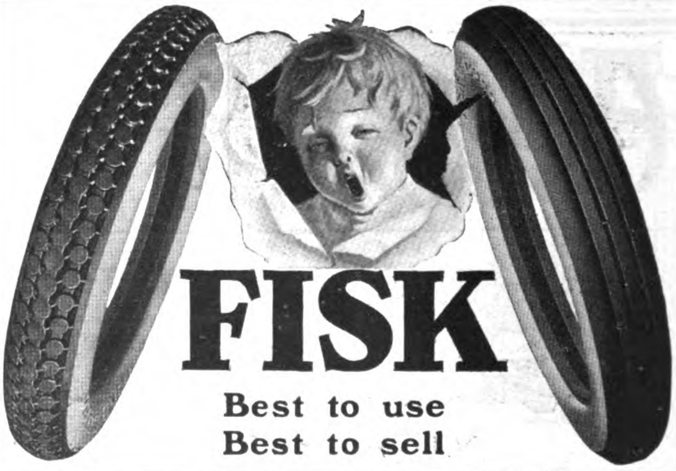
HIGGINS QUALITY SPRINGS

For Replacement

No center breakage—new nib construction **prevents** it. Absolute security from tip to tip—combined with utmost riding comfort. Squeak and rust-proof. Painted black. Ready for installation. For all cars. Quick service. Big discounts to dealers. Write for catalog C 1917 and Prices.

HIGGINS SPRING & AXLE CO.
Dept. 1129 Racine, Wis.

NO BOLT-NO HOLE-NO HUMP



FISK

Best to use
Best to sell

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

NEW YORK
REPLACEMENT COILS AND RESISTANCE UNITS

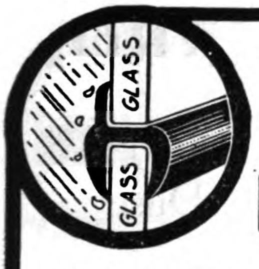
Service Stations
AND
Garage Men

everywhere are buying our Spark Coils and Resistance Units for replacement on all battery ignition equipped cars.

STYLE A
STYLE D
TYPE B
TYPE C
TYPE F

Western Distributor:
Gray-Heath Co., 1440 Michigan Ave., Chicago, Ill.

NEW YORK COIL COMPANY
338 PEARL ST. NEW YORK CITY

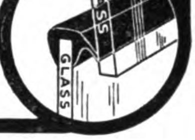


STOPS THAT LEAK
Thru the Windshield

The McCormick-Allmand Patented Weatherstrip is a necessity for every car. Now is the time it sells like hot cakes. Big profits.

McCORMICK-ALLMAND WEATHERSTRIP
PATENTED

made of rubber for both regular and off-set type (Ford Cars) windshields. Closes space on windshields making it absolutely watertight. Fits any space or thickness of glass. Easily put on and off.



Write for Dealers' Proposition

Robinson Mfg. Co. 502 Lincoln Bldg.
Louisville, Ky.

Do Tiring Repairing

AKRON-WILLIAMS
A-W
PRODUCTS

—but use only the most approved outfits

Akron-Williams
TIRE REPAIR EQUIPMENT

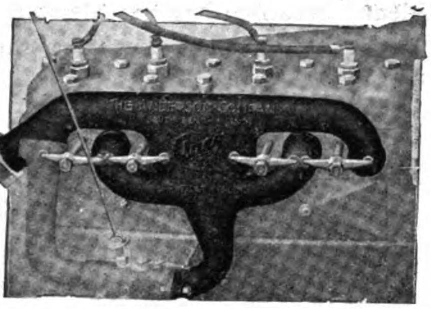
Designed with the help of the foremost tire engineers; used, recommended and sold by all leading tire companies.

An outfit for every size shop—send for new descriptive catalog.

The Williams Foundry & Machine Co.
Ash Street, Akron, Ohio.

---

the ANCO EVENHEAT "HOT SPOT" MANIFOLD
an essential for Ford cars



"The principle is right"

Present day gasoline is such stubborn motor fuel that Studebaker, Hupmobile, Chalmers, Cole and others now equip new cars with **even heat** "hot spot" manifolds to obtain maximum mileage, power and flexibility and minimum heat and carbon. The Ford also needs a "hot spot" manifold, especially in winter when cold weather, combined with poor gas, makes all cars "cranky," unless so equipped.

The ANCO guarantees the Ford owner a third to a half **more miles** per gallon of gasoline and insures more power, more speed and flexibility, and a quicker, smoother getaway. The ANCO **alone has a centrally located** "hot spot" which, like the **even heat** manifolds on the Liberty Motor and on the new U. S. war-truck motors, supplies **the same perfect quality of gas to all four cylinders.**

Owners Recognize the Need for the Anco Evenheat Manifold.

Scores of jobbers and thousands of dealers are profitably supplying this need.

The ANCO is easily installed with a **wrench only** in twenty minutes. Each ANCO is nicely finished and packed complete (gaskets included) in a substantial sealed shipping carton. **Looks good and makes good.**

Retails at $9.75. Rocky Mountains and West, $10.50. If your jobber can't supply you quickly, order direct, giving his name.

Anco Evenheat Manifold

THE ANDERSON COMPANY
201 S. St. Joseph Street,
South Bend, Indiana.

Saves Gas-Prevents Carbon-Adds Power and Speed

"The Motorist who is Brunnerwise knows Brunner Service Satisfies"

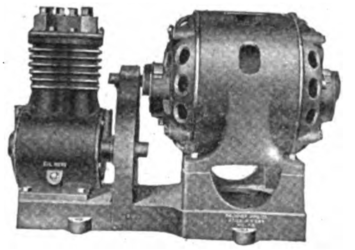
The Confidence of the Motoring Public is the Garagemans Greatest Asset—

BRUNNER

Automatic Garage Air Compressors inspire confidence because they are absolutely reliable, and motorists know they are going to get service when they pull up in front of the garage displaying the Brunner sign—

BRUNNER AIR SERVICE
AIR
THE MOTORIST WHO IS BRUNNERWISE
KNOWS BRUNNER SERVICE SATISFIES

The bright red centre of the well-known Brunner sign is eagerly sought out along the highways from ocean to ocean by thousands of Brunnerwise motorists who know that a high-class, efficient compressed air supply is always available where the Brunner sign is displayed. The Brunner sign was the first air sign—an original Brunner idea.



The Brunner is the pioneer of all garage air compressors—a Brunner Automatic would increase the efficiency of your air service and conserve labor for you, Mr. Garageman.

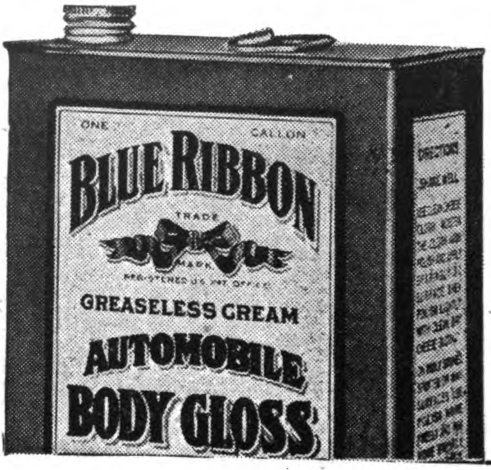
Write for catalogue No. 15 and name of the Brunner jobber covering your town.

Brunner Manufacturing Co.

Main Office & Plant:
UTICA, N. Y.

Western Branch:
Cincinnati, Ohio

"The Motorist who is Brunnerwise knows Brunner Service Satisfies"


ONE GALLON
BLUE RIBBON
TRADE MARK
REGISTERED U.S. PAT. OFFICE
GREASELESS CREAM
AUTOMOBILE
BODY GLOSS

KEEPS THE BODY OF YOUR CAR *Shining* LIKE A MIRROR

No Grease to Catch Dust
Does Not Coat the Finish
Best Furniture Polish Made
Use With Spray if Desired

International Metal Polish Co.

INDIANAPOLIS, INDIANA

INDIANAPOLIS, IND.

TRADE OUTLET

New Tops For Old Cars

Dress up your old car—put on a new, up-to-the-minute one-man-top. Your car will look like new. The stylish low design adds beauty to any car. Your old top fixtures are used and the work of attaching is done quickly. Your car is not laid up. We have special fixtures for attaching new top securely to your old windshield. We have put on hundreds of tops for Detroit car owners—every one is more than pleased. If there is any doubt in your mind drive out and talk it over with our top man. He knows the top business thoroughly.

Five-passenger, one-man mohair top	$45.00
Seven-passenger, one-man mohair top	47.50
Roadster one-man mohair top	27.50
Ford Touring one-man mohair top	37.50
Ford Roadster one-man mohair top	25.00

The above prices include a complete one-man-top with storm curtains and top dust proof boot, together with fittings for properly attaching top to any windshield.

We build all weather curtains and tops for every make of car.

PURITAN ELECTRICAL SUPPLIES.

6 volt Autolite Generators, model GG, brand new	$12.50
6 volt Ward-Leonard Starting Motors, brand new	15.00
6 volt Ward-Leonard Generators, brand new	15.00
Ward-Leonard Controllers, brand new	8.00
Connecticut G. Lighting and Ignition Switches, new	6.00
Connecticut G. A. Coils, new	7.50
Cuno Starting Switches, new	2.50
Bosch D. U. 4 Magnetos, variable spark, rebuilt, guaranteed	30.00
6 volt 100-hour Exide Storage Batteries, new	20.00
6 volt 100-hour Century Storage Batteries, new	20.00

PURITAN MACHINE CO.

31 Puritan Bldg., 10th and Lafayette St.
Detroit, Mich., U. S. A.

TRADE MARK
TREADO
PATENTED MAY 9, 1916 REG. U.S. PAT. OFF.

SMALL CUTS

in your Auto Tires, mend them yourself with TREADO—a prepared rubber, requires no cement, heat or patches. 50c a can. Special Discounts to Dealers.

TREADO MANUFACTURING CO.

42 Dwight St., Springfield, Mass.

AUTO SAVE 50-90% FOR 400 CARS PARTS

POPE, PACKARDS, PIERCE, BUICK, STEVENS-DURYEA, KNOX, OVERLAND, ETC.

Motors	$25.00 up	Presto Tanks	$ 4.50 up
Magnetos	4.00 "	New Spotlights	2.00 "
Carburetors	3.00 "	Generators	10.00 "
Rear Axles	15.00 "	Gears	1.00 "
Front Axles	5.00 "	Bearings	1.00 "
Cylinders	5.00 "	Radiators	10.00 "

$12 Diamond Bumpers............$5.50

Jobbers in Bankrupt Auto Supplies.

BRIGHTMAN AUTO EXCHANGE

84 Wooster St., Hartford, Conn.

Superior Parts and Brushes

FOR ALL

Ignition and Starting Lighting Systems

Used for Years by the Best Repair Shops Everywhere

"They Last Longer but Cost Less"

Write for Catalogue

Specialty Manufacturing Co.

637 Massachusetts Ave., Arlington, Mass.

Wilkins & Hovey Co.

35 Albany St., Cambridge, Mass.

Cylinder Grinding, Welding & Toolmaking

Skilled mechanics and high grade equipment assure our customers of satisfactory work. We have made a specialty of executing large and small jobs and are specially fitted to handle work that is wanted in short time.

SHIP YOUR CYLINDERS NOW.

We invite correspondence from manufacturers who are desirous of first class work on welding jobs. Send us your blue prints.

Wilkins & Hovey Co.

35 ALBANY ST., CAMBRIDGE, MASS.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it, and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. **40 Mathewson St., Providence, R. I.**

Phone Union 4179-R.

Auto Parts

SAVE AT LEAST 50%

We have in stock at all times parts for Stearns, Stevens-Duryea, Flanders, Maxwells, E. M. F., Buicks, Mitchells, Speedwells, Herreshoffs, Hudsons, Elmores, Pope Hartfords and Franklin cars.

Write, Wire or Phone.

BOSTON AUTO PARTS CO.

1240 Dorchester Avenue, Boston, Mass.

Send it to Detroit

MAGNETOS.

Bosch DU4 Variable spark	$30.00
Bosch DU-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cyl. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	10.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hours service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange

192 Grand River Ave. Detroit, Mich.

Perfection Springs

2000 Ford Fronts
200 Maxfer Rear
200 Smith Form A Rear

ALL OTHER MAKES

Immediate Deliveries **Dealers write for prices**

Geo. Lawrence, Inc.

Cambria Street, Boston

EXPERT REPAIRING; every known Magneto and Ignition System, Starters, Motors, Generators. **Magneto Exchange and Repair Shop, 289 Halsey Street, Newark, N. J.**

"NORMA"

PRECISION BALL BEARINGS

(PATENTED)

In men and in mechanisms carrying burdens of responsibility, failure is the one unpardonable sin. The pleading of unpreparedness is no excuse—least of all, when a desire to save a little money lies at the root of that unpreparedness. To succeed—to be adequate—to meet responsibilities—are essentials beside which cost cannot be considered.

"NORMA" Precision Bearings—even at a slightly higher cost—are considered essential factors in assuring that dependability in service which the makers of ignition apparatus and lighting generators feel themselves obligated to incorporate in their products—upon which rests so heavy a burden of responsibility for the nation's success.

Be *Sure*—See That Your Electrical Apparatus Is "NORMA" Equipped.

THE NORMA COMPANY OF AMERICA

1790 BROADWAY NEW YORK

Ball, Roller, Thrust, Combination Bearings

"NORMA"

THE ACCESSORY AND GARAGE JOURNAL

INDEX TO ADVERTISERS

	Page
Adamson Mfg. Co.	56
Advance Auto Accessories Corp	8
American Bureau of Engineering, Inc	52
American Technical Society	53
Anderson Co.	59
Anti-Borax Compound Co	53
Auglaize Motor Car Co	57
Automobile Devices Co	55
Bilodeau Ball Bearings Works	52
Boston Auto Parts Co	61
Bowser & Co., Inc., S. F	63
Brightman Auto Exchange	61
Brunner Mfg. Co	60
Buffum Tool Co	58
Bunting Brass & Bronze Co	55
Carborundum Co.	5
Colorado Tire and Leather Co	3
Continental Auto Parts Co	56
Corning Glass Works	7
Corp Brothers	61
Curtis Pneumatic Machinery Co.	Cover
Detroit Magneto Exchange	61
Dixon Crucible Co., Jos	53
Dyer Co., G. H	1
Faw, Inc., J. H	Cover
Fisk Rubber Co	58
Fitzgerald Mfg. Co	4
Franklin Mfg. Co	64
Gates Rubber Co	3
Higgins Spring and Axle Co	58
Hubbard, M. K., Spring Co	64
International Metal Polish Co	60

INDEX TO ADVERTISERS

(Continued)

Page
Jefferson Electric Mfg. Co.....55
Jenkins Vulcan Spring Co.....64
J. & B. Manufacturing Co.....50

Kennedy Car Liner and Bag Co.....55
King-Bull Mfg. Co.....56

Lawrence, Inc., Geo.....61
Lawson, F. H., Co.....64

Magneto Exchange and Repair Shop.....61
Martin Mfg. Co.....55
Metal Hose and Tubing Co.....57
Mitchell & Smith, Inc.....53
Mueller & Co., R. S.....56

National Bearings Service Co.....58
New Departure Mfg. Co.....56
New Era Spring and Specialty Co..... 6
New York Coil Co.....59
Norma Co. of America.....62

Piston Ring Co.....58
Furitan Machine Co.....61

Robinson Mfg. Co.....59
Ross-Gould List and Letter Co.....55

Scaife, Wm. B. & Sons Co.....56
Schrader's Son, Inc., A.....57
Shaler Co., C. A.....64
Specialty Mfg. Co.....61
Stenman Electric Valve Grinder Co., Inc.....64

Treado Manufacturing Co.....61

United Engine and Mfg. Co.....64
United States Air Compressor Co.....58
United Motors Service, Inc..... 2

Vanderpool Co., Wm.....52

Walden-Worcester, Inc.....Cover
Webber Mfg. Co.....52
Weston Electrical Instrument Co.....57
Wilkins & Hovey Co.....61
Williams Foundry and Machine Co.....59

Conserve Time!

Time is an all essential element. Napoleon was defeated because his expected reinforcements were behind **time.** Millions of dollars and thousands of lives are lost every year because men do not properly reckon with **time.**

At the present as never before in history, **time** must be conserved to the utmost degree. Every minute must yield its greatest possibilities.

BOWSER
Systems

for the storing and handling of oil, conserve more than half the **time** expended by less efficient methods.

They also conserve:

LABOR
CAPITAL
SPACE
LIVES
PROPERTY
MATERIAL
MACHINERY

BOWSER Systems are leakproof, dirtproof, fireproof, lossproof, deterioration proof, evaporation proof, rapid, economical and efficient.

A System for Every Requirement.

Write today.

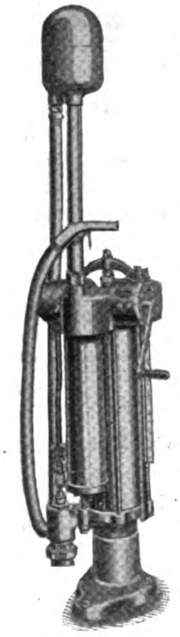


Figure 101, 5-Gal. Pump for Gasoline

S. F. Bowser & Company, Inc.
FORT WAYNE, INDIANA, U. S. A.

Sales Offices in all centers.

Representatives Everywhere.

REG. U.S. PATENT OFFICE
IRONCLAD
KHAKI TWILLS
GUARANTEED FAST
WEARS LIKE LEATHER

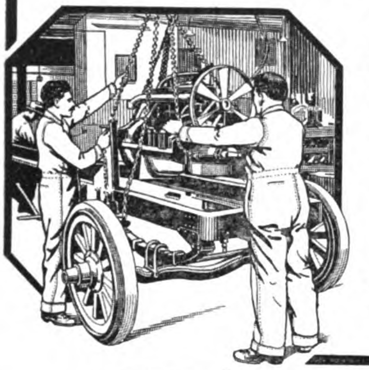
UNCLE SAM'S FIGHTING BOYS WEAR

IRONCLAD KHAKI

(Twill Cloth)

You men and women on the "firing lines" of industry should wear garments of this patriotic economy cloth, too. It's fast color and *wears like leather.*

Coveralls, Overalls,
Shirts and Pants



made of the genuine IRONCLAD KHAKI (the kind Uncle Sam uses) carry the yellow "Army label" like the above. LOOK for it and the Guarantee Bond in the garments before you buy.

See for yourself what Ironclad Khaki and Miss Ironclad Khaki, the special woman's overall cloth, look like. Write today for free samples.

Garments on Sale by Dealers —Everywhere.

We are makers of the cloth only

FRANKLIN MANUFACTURING CO.
134 Market Place Baltimore, Md.

PROFIT ON YOUR LABOR

STENMAN ELECTRIC VALVE GRINDER

Repairers need it; Efficiency prompts its use; Scarcity of workers demand it.

In twenty minutes eight valves can be ground easily and accurately. A perfect job guaranteed. A novice can operate it. The old way by hand takes two hours or more with uncertain results. Saves the time and adds it all to profits.

Plugs in on any lamp socket. A or D current, 110 or 130 volts. Made for higher voltage when required.

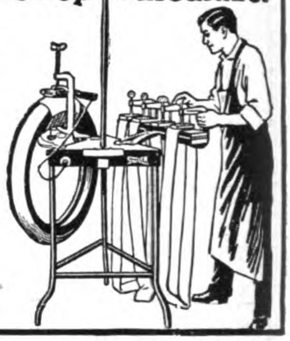
State voltage desired when ordering.

Sold by dealers or direct.

The Stenman Electric Valve Grinder Co.
42 Southbridge Street, Worcester, Mass.

MAKE MONEY Repairing Tires

SHALER Electric Shop Vulcanizer



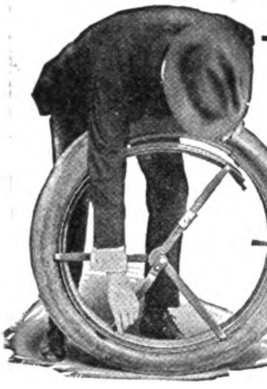
The high cost and limited supply of tires makes it necessary for motorists to conserve their tires and get maximum mileage. Present conditions offer tire repair men a big opportunity to make money. Experienced help not necessary.

With this Shaler Electric Vulcanizer you can make money easy. It heats from city electric light current—*has automatic heat control*—no danger of fire or explosions.

Will mend any style or size of tire—both casing and inner tube. Handles 12 casings and 200 tubes a day. Anybody can operate it, and turn out perfect work. Price $65.00 complete—Subject to Trade Disount.

Write at once for catalog of our complete line of Shaler Vulcanizers, Steam or Electric for Repair Shops and quick selling models for motorists.

C. A. SHALER CO., 258 Fourth St., Waupun, Wis.



REMOVE *ANY* RIM

with the

"Lawco" Rim Tool

(Patents Pending)

Do in a minute what now takes an hour without injury to rim, tire, or valve stem. Use the "Lawco" Rim Tool. Closes compactly. Weighs 5½ pounds. Only $3.50.

Dealers write for proposition

Dept. G. THE F. H. LAWSON CO., Cincinnati, Ohio

SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

16 lbs. Assorted Springs	**$2.00**
25 lbs. Assorted Cotters	**5.00**

Subject to Market Changes.
Send for Catalogue.

PLUG READY TO EXPAND
SPECIAL POINTS (FOR QUICK ASSEMBLY)

Welch Patent Expansion Plug.
For Closing Core Holes.

M. K. HUBBARD SPRING CO., Pontiac, Mich.

IN EVERY TOWN FOR EVERY CAR

Dealers! Garagemen!
Put in a complete, assorted stock of

VULCAN SPRINGS

Link up Spring Service for Your Customers with Vulcan "Spring Service for the Nation". Write now for our special proposition of assorted stock of **quick sellers,** with Display Rack, Doorsign, Window Transfers, etc.—Free.

Jenkins Vulcan Spring Co.,
Richmond, Indiana.

Stock Carried at These Branches:
St. Louis, Mo. 1402 Chestnut St.
Minneapolis, Minn. 1024 Hennepin Ave.
Dallas, Texas 209 So. Houston St.
Reading, Pa. 538 Franklin St.
Sumter, S. C. 29 Caldwell St.
Atlanta, Ga. 48 Auburn Ave.

The MANLEY GARAGE AND SHOP EQUIPMENT

Every garageman and repairman should get our catalog. You'll find in it just the time and labor savers you need, and their prices will astonish you by their moderateness.

Send for your copy of this catalog today

THE UNITED ENGINE & MFG. CO.
Hanover, Pa.

DEMAND DYER

WHEN

You Want The Best Ford Replacement Parts

WE NOW MANUFACTURE

In Large Quantities

Pistons (regular and lightweight), Step-Cut Rings, Diagonal-Cut Rings, Wrist Pins, Wrist Pin Bushings, Rear Axle Shafts, Spindle Body Bolts, Spindle Arm Bolts, Stationary Cones and Adjustable Cones.

Guaranteed to satisfy most rigid requirements on material, sizes and workmanship.

Standard Weight

THE BEST ALWAYS

SIZES

STANDARD
.0025 oversize
.005 oversize
.010 oversize
.015 oversize
.025 oversize
.031 oversize
.033 oversize

Lightweight

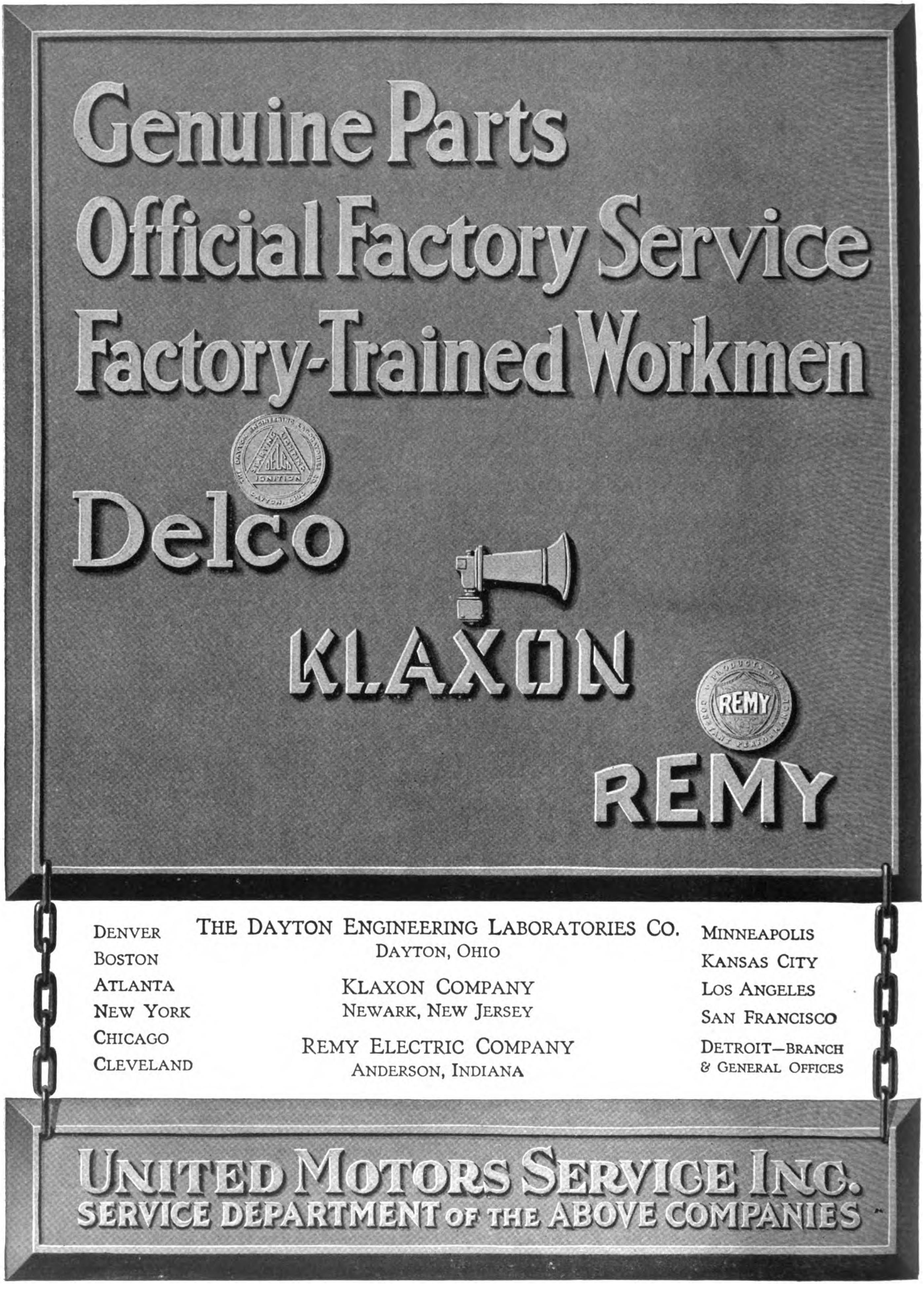
FORD TYPE PISTONS

Car Owners and Dealers Want Dyer Pistons Because:

1. **All Measurements are Guaranteed Correct.**
2. **They are Accurately Fitted With the Best Step-Cut Rings.**
3. **They are of Uniform Weight—3¼ Pounds.**
4. **Pistons and Rings are Ground to Exact Size and Have a High Finish.**
5. **The Pins and Bushings are Made From the Best Stock Carefully Ground, Reamed and Fitted.**

NOTE: *We are again producing our well-known cast iron "Lightweight" piston which is One Pound lighter than the regular Ford giving less wear and vibration and more power and speed.*

THE G. H. DYER CO., Cambridge, Mass.



Genuine Parts
Official Factory Service
Factory-Trained Workmen

Delco

KLAXON

REMY

DENVER
BOSTON
ATLANTA
NEW YORK
CHICAGO
CLEVELAND

THE DAYTON ENGINEERING LABORATORIES CO.
DAYTON, OHIO

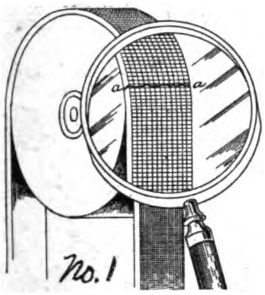
KLAXON COMPANY
NEWARK, NEW JERSEY

REMY ELECTRIC COMPANY
ANDERSON, INDIANA

MINNEAPOLIS
KANSAS CITY
LOS ANGELES
SAN FRANCISCO
DETROIT—BRANCH & GENERAL OFFICES

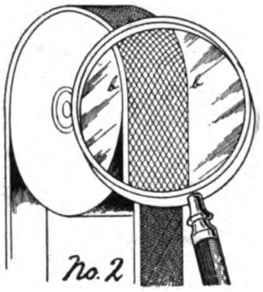
UNITED MOTORS SERVICE INC.
SERVICE DEPARTMENT OF THE ABOVE COMPANIES

How does a fan-belt break?



It breaks straight across—because that's the way it hinges on the pulley. Sketch number one shows you a belt with the fabric running lengthwise and across. You can see in a minute that the strain is all on one set of threads.

The other sketch shows you a belt cut on the bias and the breaking tendency is across two sets of threads, which gives double the strength.



Did you ever try to tear cloth on the bias? You can't do it—and that's why we make Vulco-Cords on the bias. That's the reason Vulco-Cords don't pull in two.

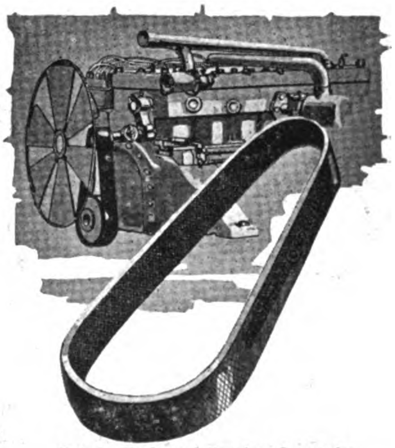
That's why we can guarantee Gates Vulco Cord Belts to outwear three ordinary belts.

And the bias construction of Gates Vulco-Cords is one of the patented features of our process. No other belt can be made that way.

Made only by

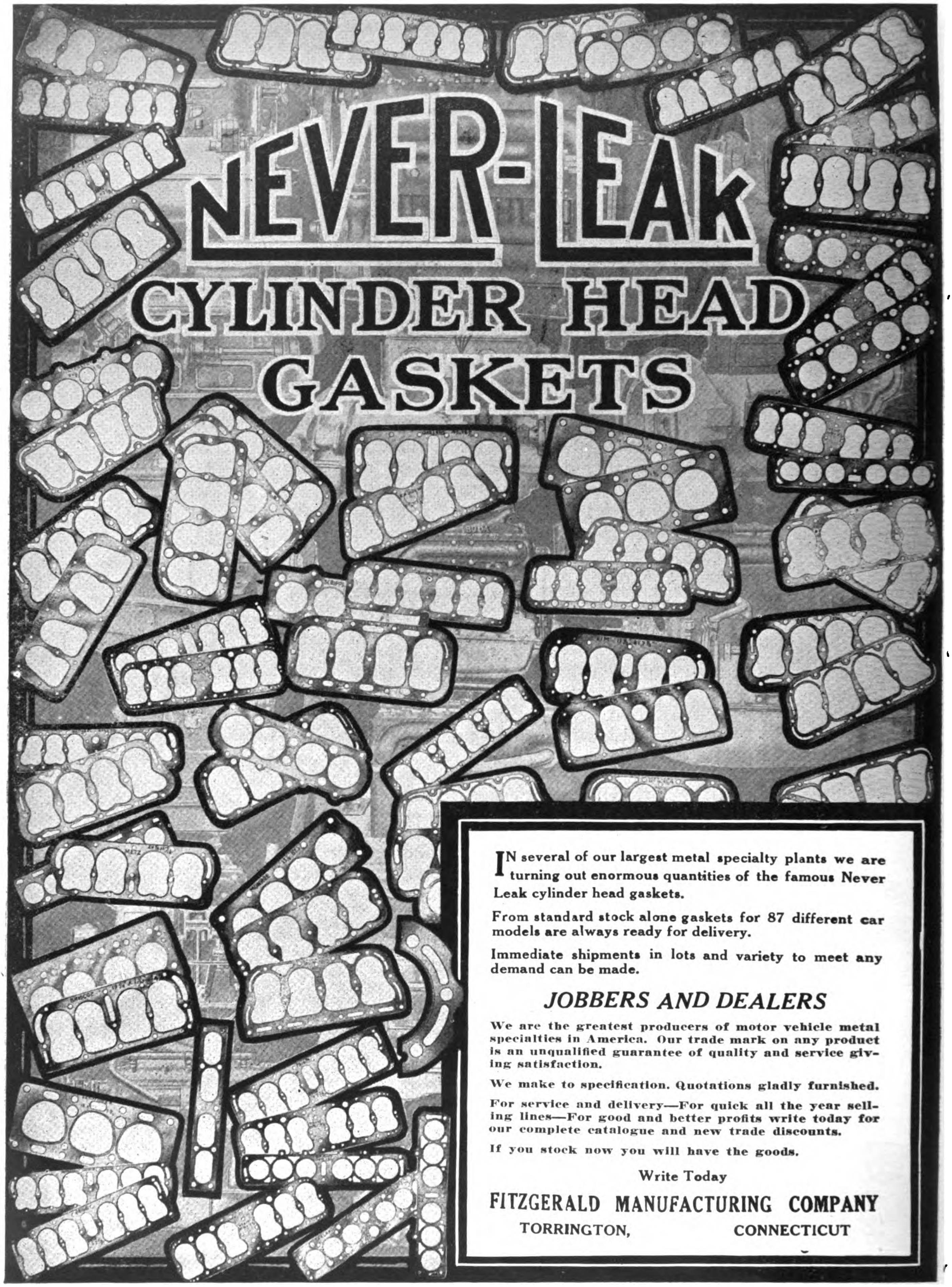
GATES
Rubber Company.
DENVER

"Worlds Largest Makers of Fan Belts"



Pat. in U. S. and Foreign Countries

DENVER
1918



IN several of our largest metal specialty plants we are turning out enormous quantities of the famous Never Leak cylinder head gaskets.

From standard stock alone gaskets for 87 different car models are always ready for delivery.

Immediate shipments in lots and variety to meet any demand can be made.

JOBBERS AND DEALERS

We are the greatest producers of motor vehicle metal specialties in America. Our trade mark on any product is an unqualified guarantee of quality and service giving satisfaction.

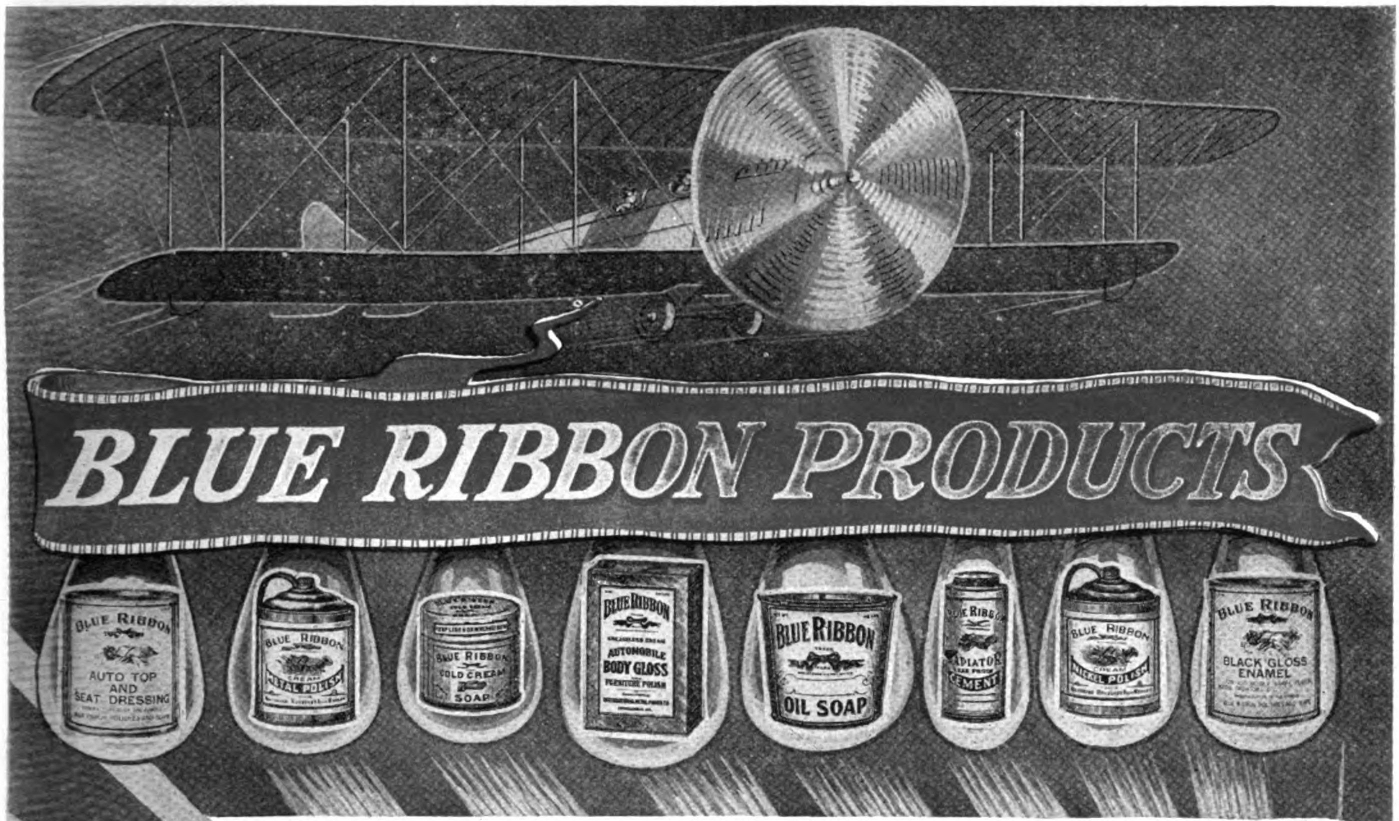
We make to specification. Quotations gladly furnished.

For service and delivery—For quick all the year selling lines—For good and better profits write today for our complete catalogue and new trade discounts.

If you stock now you will have the goods.

Write Today

FITZGERALD MANUFACTURING COMPANY
TORRINGTON, CONNECTICUT


BLUE RIBBON PRODUCTS
BLUE RIBBON AUTO TOP AND SEAT DRESSING
BLUE RIBBON METAL POLISH
BLUE RIBBON COLD CREAM SOAP
BLUE RIBBON AUTOMOBILE BODY GLOSS
BLUE RIBBON OIL SOAP
BLUE RIBBON RADIATOR CEMENT
BLUE RIBBON NICKEL POLISH
BLUE RIBBON BLACK GLOSS ENAMEL

Are a Standard Line

Jobbers and Dealers stock the full Blue Ribbon line as they do all other tried, proven and constantly selling goods.

Blue Ribbon products are made by specialists who depend wholly on the quality and service giving satisfaction afforded by lines bearing their trade mark.

There can be no experimentation at the expense of the consumer, dealer or jobber. All Blue Ribbon Specialties must be as good as they are practical in every day use as it is possible to make them.

A nation wide trade, enormous expenditures devoted to development and promotion work as well as the maintenance and operation of the largest plant of the kind in America is too great a stake to gamble against quality.

Blue Ribbon Products today stand supreme. They are passed over the counters backed by an unqualified guarantee on the part of the trade that can leave no doubt as to their merits.

That is why Blue Ribbon Products are a standard line and will always continue to be so.

That is why all jobbers and dealers sell and list them in their catalogues.

Above all else that is why the consumer buys Blue Ribbon trade marked products. Blue Ribbon Products cost no more than others, yet represent the most profitable line that can be placed by the jobber or dealer.

If the **BLUE RIBBON** trade mark is to be seen on your shelves or counter you have a silent salesman in your store that is always working, always earning.

All Blue Ribbon Specialties are sold in quantities to meet any requirement.

The full line affords a complete line and it pays to specialize in known quality goods.

Blue Ribbon Specialties Include:

Blue Ribbon Cold Cream Hand Soap
Contains no pumice or sand.

Blue Ribbon Leak Proof Cement
A permanent radiator cement.

Blue Ribbon Nickel Polish
For nickel parts and trimmings.

Blue Ribbon Auto Body Gloss
For automobile or furniture.

Blue Ribbon Lightning Carbon Remover
Quick and positive in action.

Blue Ribbon Black Enamel
For lamps, hoods, radiators and metal parts.

Blue Ribbon Auto Top and Seat Dressing
A waterproof dressing that restores tops and seats.

Blue Ribbon Hand-On Patch
A self-vulcanizing patch for shoes and tubes that never fails.

Blue Ribbon Cream Metal Polish
For any metal. An easy, quick working, satisfactory polish.

Blue Ribbon Oil Soap
A pure vegetable oil soap for any purpose. All quality and efficient.

This is the time to consider your winter and spring requirements

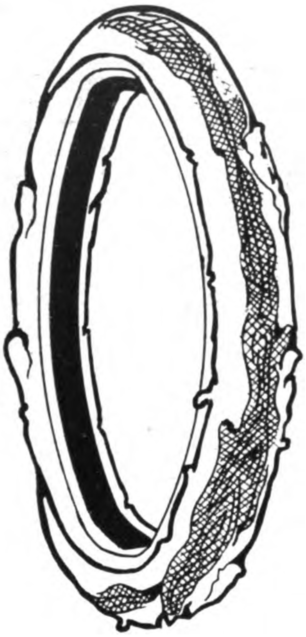
Jobbers and Dealers: Prices and discounts at request.

BLUE RIBBON LIQUID RADIATOR CEMENT
BLUE RIBBON Hand-on Patch
BLUE RIBBON LIGHTNING CARBON REMOVER

International Metal Polish Co.
INDIANAPOLIS, INDIANA.

Reconstructed Tires

Many tires that are thrown away as useless can be rebuilt so that they will deliver from **2500 to 5000 miles.** We do not merely retread tires—we thoroughly **reconstruct** them.



To do this work properly requires the full equipment of a modern tire factory. We have installed this equipment—have the best experienced tire building operatives. We will either rebuild your tires or supply you with rebuilt casings.

The cost is **low**—the extra mileage **high.**

"GOODYEAR ALL WEATHER TREAD"

We have a very attractive proposition for

Tire Repairers, Garages and Dealers

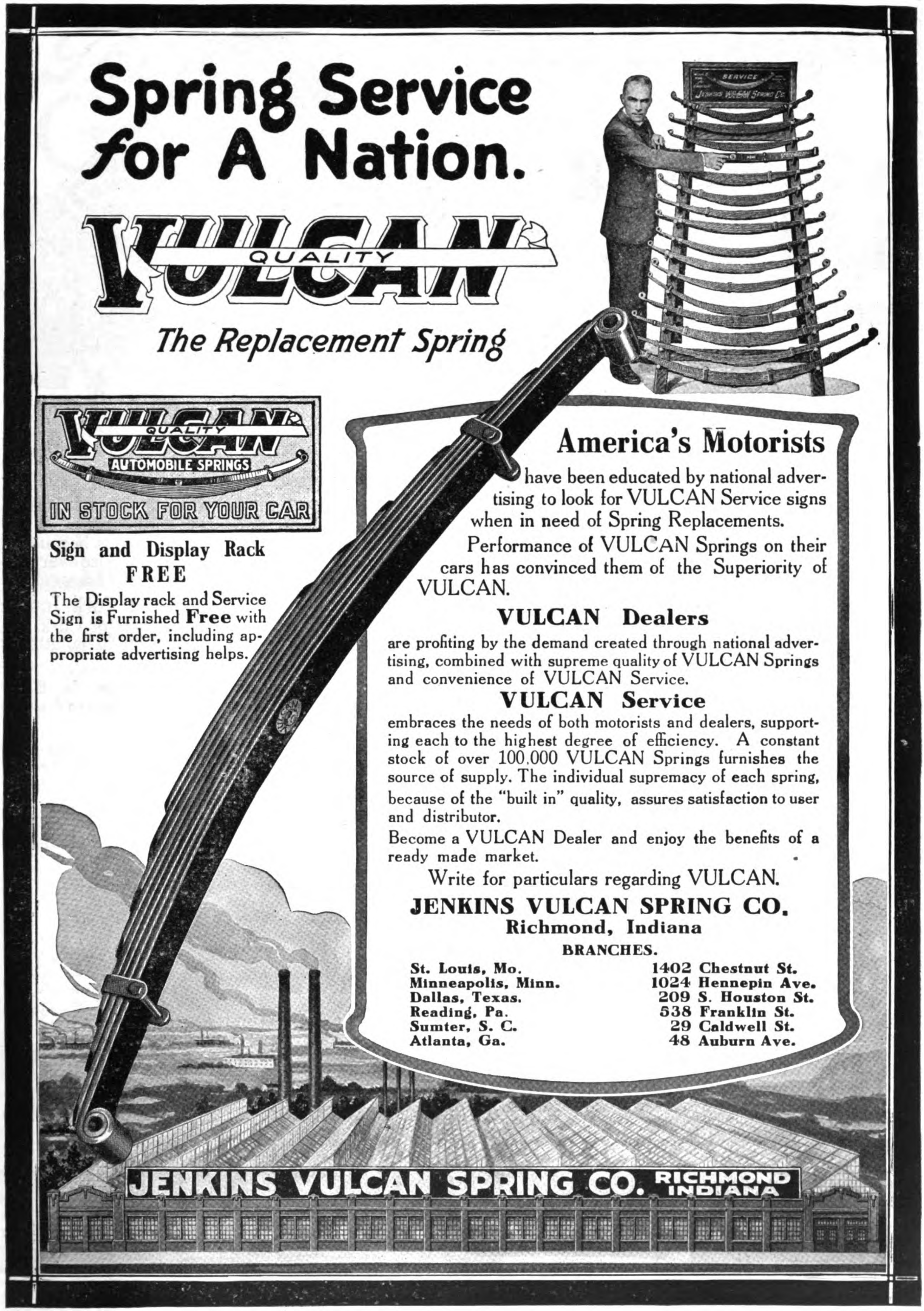
If you care doing this work we can supply you with ribbed or all-weather tread bands at a saving of

$1.50 to $3.00
Per Band

This is Real Saving Write Us Today

Tire Construction Company

129-131 Columbus Ave., Boston, Mass.


SERVICE
Jenkins Vulcan Spring Co.
JENKINS VULCAN SPRING CO. RICHMOND INDIANA

Spring Service for A Nation.

VULCAN QUALITY

The Replacement Spring

VULCAN QUALITY
AUTOMOBILE SPRINGS
IN STOCK FOR YOUR CAR

Sign and Display Rack FREE

The Display rack and Service Sign is Furnished **Free** with the first order, including appropriate advertising helps.

America's Motorists

have been educated by national advertising to look for VULCAN Service signs when in need of Spring Replacements.

Performance of VULCAN Springs on their cars has convinced them of the Superiority of VULCAN.

VULCAN Dealers

are profiting by the demand created through national advertising, combined with supreme quality of VULCAN Springs and convenience of VULCAN Service.

VULCAN Service

embraces the needs of both motorists and dealers, supporting each to the highest degree of efficiency. A constant stock of over 100,000 VULCAN Springs furnishes the source of supply. The individual supremacy of each spring, because of the "built in" quality, assures satisfaction to user and distributor.

Become a VULCAN Dealer and enjoy the benefits of a ready made market.

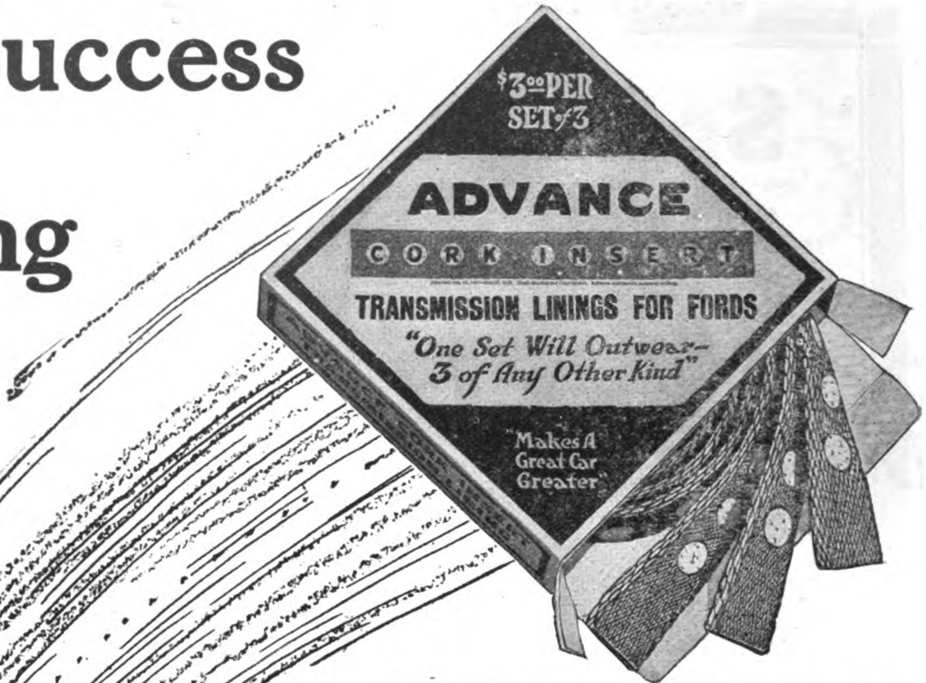
Write for particulars regarding VULCAN.

JENKINS VULCAN SPRING CO.
Richmond, Indiana

BRANCHES.

St. Louis, Mo.	1402 Chestnut St.
Minneapolis, Minn.	1024 Hennepin Ave.
Dallas, Texas.	209 S. Houston St.
Reading, Pa.	538 Franklin St.
Sumter, S. C.	29 Caldwell St.
Atlanta, Ga.	48 Auburn Ave.

Biggest Success in the Ford Lining Field


$3.00 PER SET of 3
ADVANCE
CORK INSERT
TRANSMISSION LININGS FOR FORDS
"One Set Will Outwear 3 of Any Other Kind"
"Makes A Great Car Greater"

A world's record! That's what Cork Insert made when it won a place on hundreds of thousands of Fords within a few short months. It broke all selling records because it gave a better performance than anything else ever produced—*smoother action—a safer brake—and longer wear.*

Don't forget that it is *merit* that has put Cork Insert over. There is no magic in the name or qualities of Cork. It has wonderful frictional properties. But by itself, it is utterly valueless as lining material.

The secret of Cork Insert Service and its success is the Cork Insert Way of combining cork and lining. It's a patented way. No other lining does the work equally well.

So look out for the imitations. They haven't the big combination idea that makes Cork Insert a success. It is easy to get Cork Insert. Most dealers sell it—any garageman will install it. Either can get it in a few hours, for all jobbers sell it.

Advance Automobile Accessories Corp.
Dept. M 3, 56 East Randolph Street, CHICAGO

ADVANCE
CORK INSERT
TRANSMISSION LINING FOR FORDS

$3 per Set of 3

Rockies West, $3.25—Canadian Price, $4.50

Smooth Action, Sure Brake, Long Wear

—that's the service that Cork Insert Transmission Lining gives. When you apply the brake, the corks hit the brake drum first. They compress gradually and ease the load down to the fabric. The light pressure required, and velvety smooth action of the buttons of cork coming in contact with the drums, means such long wear that Cork Inserts are far the cheapest in the long run.

ADVANCE
CORK INSERT
FAN BELT—FORDS

$1
for 1917-18 Fords
85c for 1916 and earlier Fords

Canadian Prices: 1917-18 model, $1.50; earlier models $1.25

Keeps the Ford Fan Fanning

Retards overheating. Most motor trouble is caused from overheating. This is due in no little degree to loss of driving power—estimated as high as 25% to 50%—because ordinary fan belts slip and stretch. Cork Insert Fan Belts stop the slipping. It doesn't have to be run light to prevent slipping, like ordinary belts. This, plus its durable construction, means extra long wear and economy. Cork Insert Fan Belts outlast all others—hence economical.

CORK INSERT

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., DECEMBER, 1918 No. 8

Dealers to Make Big Drive for Business With Many General Shows

Trade Interests Throughout the Country Practically a Unit in Campaign of Local Exhibitions to Promote Early Buying and Stimulate and Stabilize the Industry—The Largest Number of Events Ever Known Is Planned

The next three months will be the most active the automotive trade has ever known. The dealers throughout the country have undertaken what will be without question the most intensive trade promotion the trade has ever engaged in.

In all sections of the United States where associations of motor vehicle dealers exist plans are making or have been determined to hold shows of passenger cars, trucks, tractors and accessories.

In many instances the associations have undertaken to organize exhibitions that will surpass in magnitute any previously held, and while these will be local shows in the sense that they will be controlled exclusively by dealer organizations, there is belief that the number of exhibitors and the character of the exhibits will be quite as interesting to the public as any expositions of previous years.

There is unanimous belief that there will be a large demand for cars and trucks despite the war prices; that the more the demand can be increased the earlier will the power vehicle production be stabilized.

The appended list of shows includes 35 separate exhibitions, and there is reason to believe that this number will be considerably increased. The main obstacle has been the comparatively short time both for manufacturers and dealers to prepare exhibits for and organize the different expositions.

One may point out that the passenger car production for 1918 would have been approximately 2,000,000 had not curtailment been necessitated by the war. The production for 1917 was about 1,750,000 vehicles. The industry cannot be expected to produce more than from 1,000,000 to 1,250,000 cars in 1919 because of the necessity of industrial readjustment. This in itself would seemingly have the effect of maintaining the existing prices.

The belief of the dealers is that the nation wants cars and trucks, and the best way to stimulate trade is a drive through local shows.

THOUGH the National Automobile Chamber of Commerce sought to discourage power vehicle exhibitions by determining not to hold shows in New York and Chicago, the members of the different organizations of dealers throughout the country have seemingly been a unit in demanding a continuation of the displays.

The National Automobile Chamber of Commerce is made up of manufacturing interests, undoubtedly informed of the conditions with reference to business, and with very accurate knowledge of the materials market. The readjustment of the different enterprises from war essentials to commercial production are undoubtedly better understood by the industrial interests, and without question the chamber based its determination on what was believed best. The manufacturers want to continue business with the least possible disorganization and desire to maintain their sales organizations intact if this can be done.

At the other hand the dealers who are concerned in preserving their own businesses, who have capital invested and realize that they must do all that is possible to stimulate and promote sales, believe that they should not wait for the manufacturers to approve exhibitions; that the best way of convincing them that business is obtainable is by ordering machines. Were shows abandoned there would be a considerable period, and what is regarded as the best of the year for the sale of vehicles, practically inactive, and though they cannot expect to receive the same support from manufacturers as in previous years with reference to what are known as national shows, these are so few that the dealers as a whole should not be guided by the attitude of the industry.

This aspect was chiefly responsible for the decision of the dealers' associations in New York and Chicago deciding to organize exhibitions and to hold them at later dates than usual. The dates were advanced principally from the fact that the time for organizing was very brief as contrasted with previous years and there was desire to make the shows as large as possible. In some instances the dealers' associations have voted to include tractor departments, believing that there is large interest in agricultural machines and that divisions given over to them would attract many people from considerable distances who would not be sufficiently attracted by either cars or trucks or both.

Considering that hostilities have ceased and that peace has not been declared as yet, and that the different car and truck mnaufacturers have by no means reconverted their plant to commercial production, there may be some reason to apprehend limitations of output for a considerable period. There may be a scarcity of materials that will affect many of the plants, but there is belief that these possibilities ought not to be considered by the dealers. So far as organization of shows is concerned, men of broad experience are available in practically every large city, and the conference of show managers held late in November convinced the various associations that there was every reason to believe that no serious obstacles existed so far as holding exhibitions were concerned.

New York Show.

This show will be organized by the New York Automobile Dealers' Association and it will be at Madison Square Garden and the 69th Regiment Armory, a short block distant. From Feb. 1 to 8 inclusive will be a show of passenger cars and accessories and from Feb. 10 to 15 inclusive trucks and truck accessories. The show committee consists of Charles H. Larson, chairman; William C. Poertner, Walter C. Wood, Harry J. DeBear, R. J. Gilmore, H. R. Bliss, William M. Sweet and Charles A. Stewart. Mr. Sweet is chairman of the show committee of the Motor and Accessory Manufacturers, and Mr. Stewart is secretary of the Automobile Dealers' Association. Special balconies are to be built to afford additional exhibition space in Madison Square Garden.

Chicago Show.

The show at Chicago will be held under the management of the show committee of the Chicago Automobile Trade Association, and, as in previous years, at the Coliseum and the First Regiment Armory. The display of passenger cars and accessories will be from Jan. 25 to Feb. 1 inclusive, and from Feb. 3 to Feb. 6 inclusive trucks and truck accessories will be shown. The show will be managed by S. A. Miles, who undertook to do in less than four weeks what had usually taken from two to three months. The show has been sanctioned by the Motor and Accessory Manufacturers. The profits in part will go to the treasury of the association, and will be divided in part with the members of the association, the National Automobile Chamber of Commerce and the Motor and Accessory Manufacturers. During the show the annual meeting and banquet of the Motor and Accessory Manufacturers will be held at Chicago, and the National Automobile Dealers' Association will meet Jan. 28 and 29 at the Hotel La Salle.

Boston Show.

The Boston Automobile Dealers' Association and the Boston Commercial Motor Vehicle Association has decided to hold its annual exhibition at Mechanics' building from March 15 to 22 inclusive, and following the usual custom this will be a combination show of passenger cars and trucks. The general arrangement of the departments of the show will be continued. Applications for space have been received very rapidly and General Manager Chester I. Campbell, who has managed every Boston show for 14 years, states there is every reason to believe that the exhibition will be up to the standard of previous years. Because there is no other building available the show must be confined to one building, which necessarily limits both the car and truck departments.

Detroit Show.

The Detroit show will take place from March 1 to 8 and will be at the Crosstown Garage building, which is claimed to be the largest one-floor garage in the world. It will be under the management of H. H. Shuart, and there will be departments for passenger cars, trucks, tractors and accessories of all kinds.

Des Moines Show.

The show at Des Moines, Ia., will take place from Feb. 17 to 22 in the new Ford building, which has 115,000 square feet of floor space on the two floors that will be used. There will be departments for passenger cars, trucks, tractors and accessories.

St. Louis Show.

The show at St. Louis, Mo., will be organized by the St. Louis Automobile Manufacturers' and Dealers' Association and will take place from Feb. 24 to 28, inclusive. The secretary of the association, Robert E. Lee, is manager.

Montreal Show.

A show will be held at Montreal, P. Q., under the management of Thomas C. Kirby, secretary of the Montreal Automobile Trade Association, who has managed all previous exhibitions in that city. It will be at the Victoria rink and will be independent of the association, which decided not to hold a show this year. The show interest was such that Mr. Kirby decided to organize one and it will be in aid of the Montreal Soldiers' Wives League. The date will be April 5 to 12.

Columbus, O., Show.

The show at Columbus, O., will be held the week beginning March 3 and in the Memorial building. It will be known as the "Victory Show" and will probably include tractors in addition to passenger cars and trucks. The organization is directed by a committee consisting of A. B. Coates, I. P. Madden and H. K. Dobson, and the show will be managed by W. W. Freeman.

The following dates have been determined (save as indicated) for the exhibitions specified, of which greater detail is not available:

Los Angeles, Cal., Automotive Exposition, Los Angeles Motor Car Dealers' Association, Jan. 11-18.
Milwaukee, Wis., 11th annual exhibition of the Milwaukee Automobile Dealers, Inc., Auditorium, Bart J. Ruddle, manager, Jan. 24-30.
Rochester, N. Y., Rochester Auto Trade Association, George C. Donahue, manager, Feb. 10-15.
Albany, N. Y., Albany Automobile Dealers' Association, Armory, Feb. 15-22.
Louisville, Ky., Louisville Auto Dealers' Association, Feb. 15-22.
Newark, N. J., New Jersey Auto Exhibition Co., Claude Holgate, manager, Feb. 15-22.
Minneapolis, Northwestern Automotive Exposition, Overland building, Walter B. Wilmot, manager, Feb. 15-22.
South Bethlehem, Pa., Lehigh Valley Auto Shows Co., J. J. Elliott, manager, passenger cars. Feb. 17-24; trucks, Feb. 24-27.
Kansas City, Mo., Kansas City Motor Dealers' Association, E. E. Peake, manager, Feb. 24-March 1.
Springfield, Mass., Springfield Automobile Dealers' Association, Municipal Auditorium, Feb. 24-March 1.
Grand Rapids, Mich., Grand Rapids Automobile Business Association, E. T. Conlon, manager, February, date not determined.
Philadelphia, Pa., Philadelphia Automobile Trade Association, A. E. Maltby, manager, passenger car show followed by truck show, March, date not determined.
Buffalo, N. Y., Buffalo Automobile Dealers' Association, March 3-8.
San Francisco, Cal., Motor Car Dealers' Association, G. A. Wahlgreen, manager, March 1-10.
Syracuse, N. Y., Syracuse Automobile Dealers' Association, Harry T. Gardner, manager, March 10-15.
St. Josephs, Ia., St. Josephs Motor Car Dealers' Association, March 12-19.
Brooklyn, N. Y., Brooklyn Motor Vehicle Dealers' Association, I. C. Kirkham, manager; passenger cars, March 22-29; trucks, April 1-5.
Trenton, N. J., Trenton Auto Trade Association, John L. Brock, manager, March 17-22.
Great Falls, Mont., Montana Automobile Distributors' Association, March, date not determined.
Pittsburgh, Pa., Automobile Dealers' Association of Pittsburgh, John J. Bell, manager, March, date not determined.
Utica, N. Y., Utica Motor Dealers' Association, W. W. Garrabrant, manager, March, date not determined.
Harrisburg, Pa., Harrisburg Motor Dealers' Association, J. Clyde Myton, manager, date not determined.
Cleveland, O., Cleveland Auto Show Co., Fred H. Caley, manager, March or April, date not determined.
Bridgeport, Conn., City Battalion, B. B Steiber, manager, date not determined.
Hartford, Conn., Hartford Automobile Dealers' Association, date not determined.
Wilmington, Del., Wilmington Motor Trade Association, date not mentioned.
Little Rock, Ark., Little Rock Automobile Dealers' Association, April, date not determined.

ACCESSORY SPECIALIZING DEVELOPED AN INDUSTRY

Remarkable Growth of Motor Specialties Co., from 10-Man Shop and One Salesman to Ideal Plant and Sales Organization Doing World-Wide Business

DEVELOPED from a very small shop that was engaged in producing an instrument utilized by the automotive industry the Motor Specialties Co., at Clematis Brook station, in the city of Waltham, Mass., is an example of the growth of an industry through specialization. The original operations were begun in 1908 at 10 Pelham street, Boston, where a single room was rented and about 10 men workers produced Bemus timers. The inventor of this timer was the entire sales force and sought business from a small number of specialty and accessory dealers and from various manufacturers of automobile vehicles.

Today the company has an admirable property, on which very large expansion is possible, the buildings are constructed with regard to obtaining high efficiency from equipment and employees, the facilities are the best obtainable for economic production, and upwards of 150 men and women are employed.

During the 10 years that has elapsed the business of the company has developed wonderfully, for its products are sold the world over and have become recognized as standards in the automotive industries of all countries. The company has a distributing organization in this country and abroad that has constantly increased the volume of sales in extremely keen competition, and its selling resources have been so perfected that it has direct representation in all parts of the United States and Canada, with exceptionally energetic connections in foreign commercial centres.

The original concern was the Monitor Manufacturing Co., which begun to make Bemus timers, which is probably the best known of any accessory for gasoline engines, and it is now quite as much of a standard product as can be specified. The company also produced the Monitor distributor, another necessary accessory when the source of ignition current was primary or secondary batteries.

There was then no recognized center of the automobile industry. The development of power vehicles was highly transitory and changes were made with each successive size, type or model built, the object seemingly being to have what might be regarded as "new" by motoring enthusiasts rather than standardized equipment that was continued because of its undoubted quality or value mechanically.

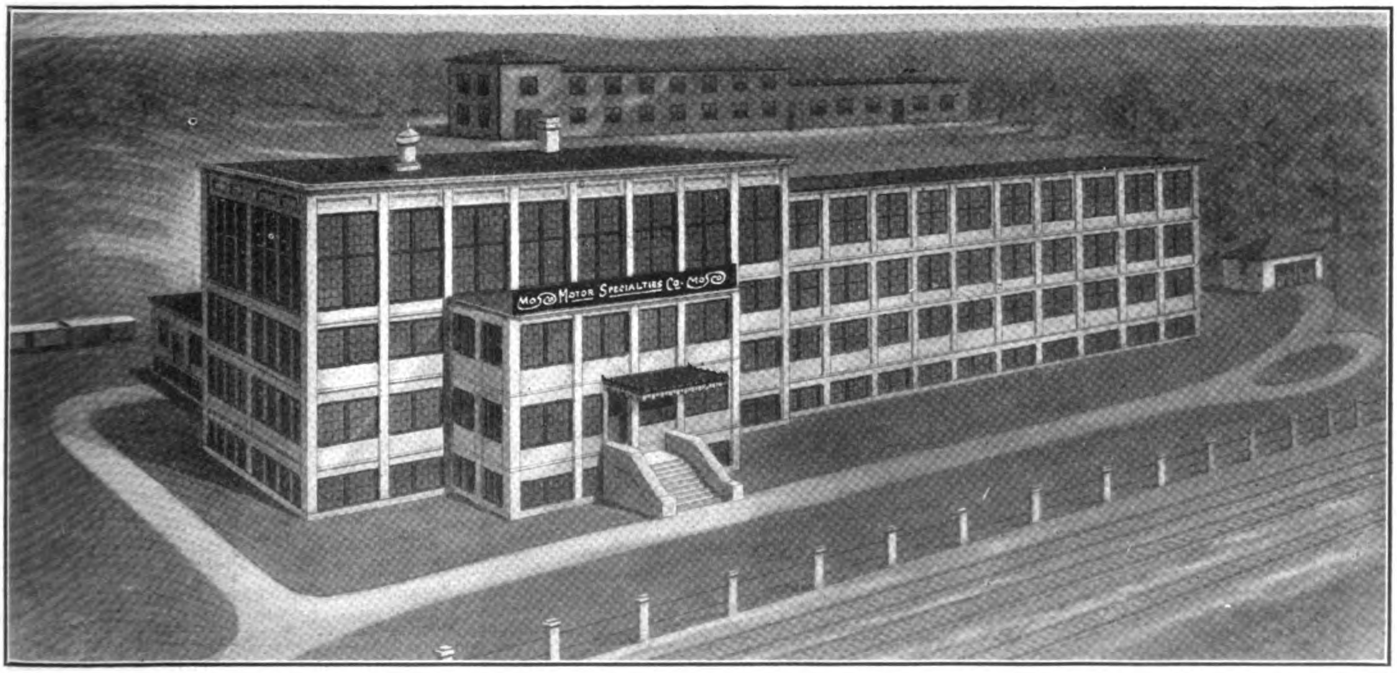
Bemus Timer a Quality Product.

The Bemus timer was invented by a man who had mechanical genius and considerable business ability. Time has proven that he had not only thorough electrical and mechanical knowledge of internal explosion ignition, but the timer was designed and constructed to have practically every desired quality. He realized the commercial possibilities as well, and rather than dispose of his patents he preferred to have the timers made to contract as he sold them, depending upon the eventual recognition of the timer by engine and power vehicle manufacturers and its use in large numbers, believing that it would be extremely productive from a financial point of view. Had he ample resources he would have undoubtedly undertaken production in much larger volume and developed distribution and sales proportionately. The Monitor distributor was another excellent instrument, but it was not widely known in the industry or to vehicle owners.

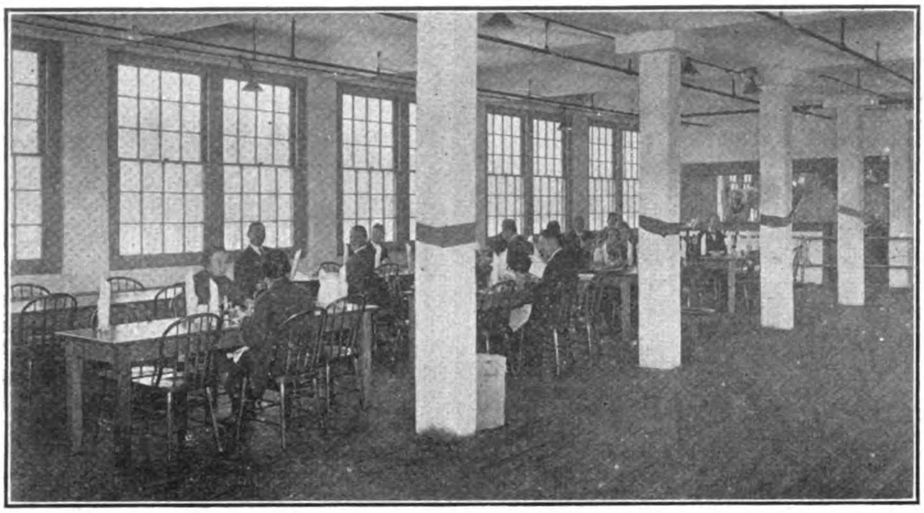
The first large contract obtained by the company was in 1908, with the Buick Motor Co. Other similar contracts were obtained, but while decided progression was made from one point of view the use of magnetos for producing engine ignition current was begun and increased with extreme rapidity. This limited the sale of timers for automobile vehicle equipment, and caused the company to develop business with builders of marine engines and railroads, for many thousands of cars for maintenance work, the type formerly known as "hand cars," are in use the world over. This market was developed to large proportions.

Consolidation in 1912.

In 1912 the company decided to engage in the manufacture of other automotive specialties and acquired the Motor Specialties Co. of Waltham, which was then manufacturing in large numbers the


MOTOR SPECIALTIES Co.

The Plant of the Motor Specialties Co. at Clematis Brook Station, Waltham, Mass., the Main Structure Being Concrete and Steel and Ideally Designed for Efficient Manufacturing from Every Phase of Sanitation.



Restaurant and Kitchen, Where the Employees Are Served Meals at Cost, Seen from the Floor of the Recreation Room, Which Is Used for Dancing After Meals.

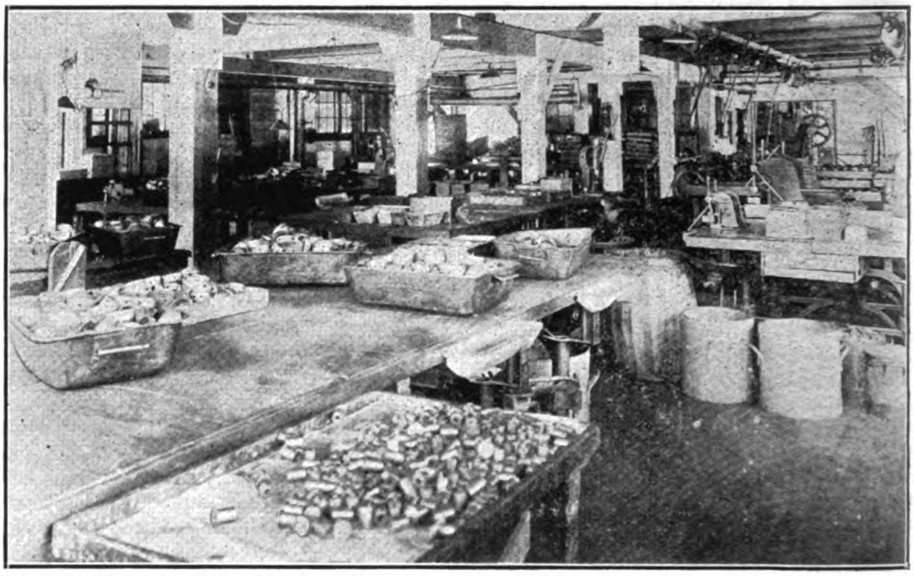
Flash auto-lighter, a device for lighting acetylene gas lamps. The trade name of "Mosco" was then adopted. This specialty had large promise, but automobile manufacturers abandoned gas for electric lighting and the demand so diminished that production was given over eventually. But this loss was after all a gain, for the electric lighting system required batteries and this impelled the use of timers and distributors instead of magnetos, so the pendulum swung back with a very large market for Bemus timers, which had been proven a high grade instrument, and this has constantly increased.

The Bemus timer had been meantime perfected in constructional detail so that it was a decidedly superior instrument, this being known as the universal type; the marine type was produced with and without circuit breakers; and a ball contact type was developed for Ford chassis. Still another timer was brought out for Ford chassis which is known as the Mosco No. 200. The production of timers was very greatly increased, and in addition the company manufactured wheel pullers, socket nut and bolt holders, and valve spring compressors for use with Ford chassis, and valve grinders, these being known by the trade name. Several other specialties were also devised, manufactured and sold as long as there was demand sufficient to justify specialization.

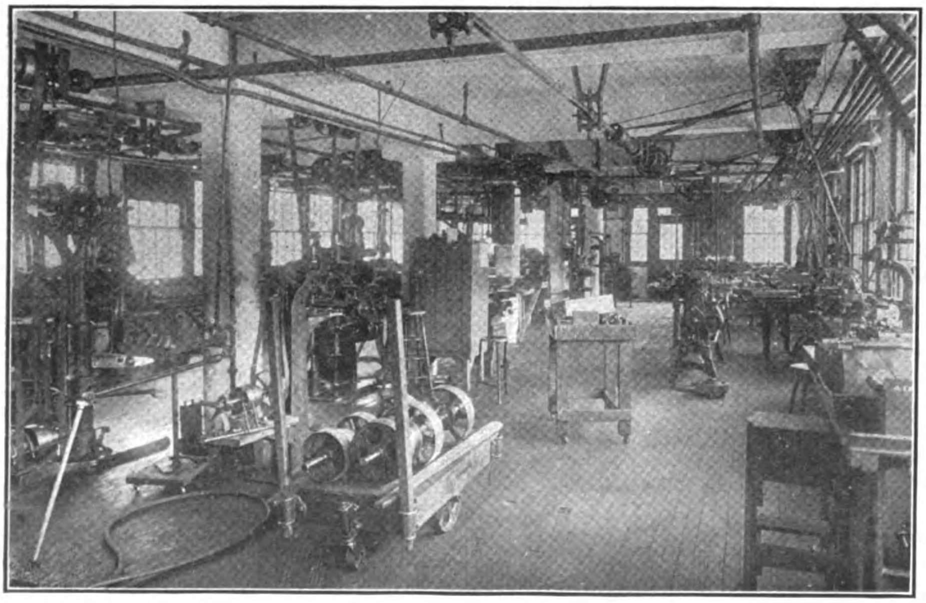
Production Growth Very Rapid.

When the company acquired the Motor Specialties Co. at Waltham in 1912 a small wooden building was occupied and about 20 workers were employed. As the business developed the shop equipment and facilities were increased until the limitations of the plant had been reached, and in 1917 the site and buildings at Clematis Brook were acquired.

The property consists of 6½ acres of land about two miles from the center of Waltham in the direction of Boston, on the main track of the Massachusetts Central and Fitchburg lines of the Boston & Maine railroad system. On this are the two main buildings, one of which is four stories, constructed of steel and reinforced concrete, with front and rear two story wings. It has a floor area of about 35,000 square feet. This structure is admirably built and so designed with reference to lighting that every inch of floor space is available for manufacturing. As will be noted from an accompanying illustration, the window area is very large. The building is practically fireproof, there being very little of it that is in any way combustible, and it is protected by sprinkler systems, partition walls and metal sheathed automatic doors. Every provision that will make for the comfort and convenience of the workers has been made.



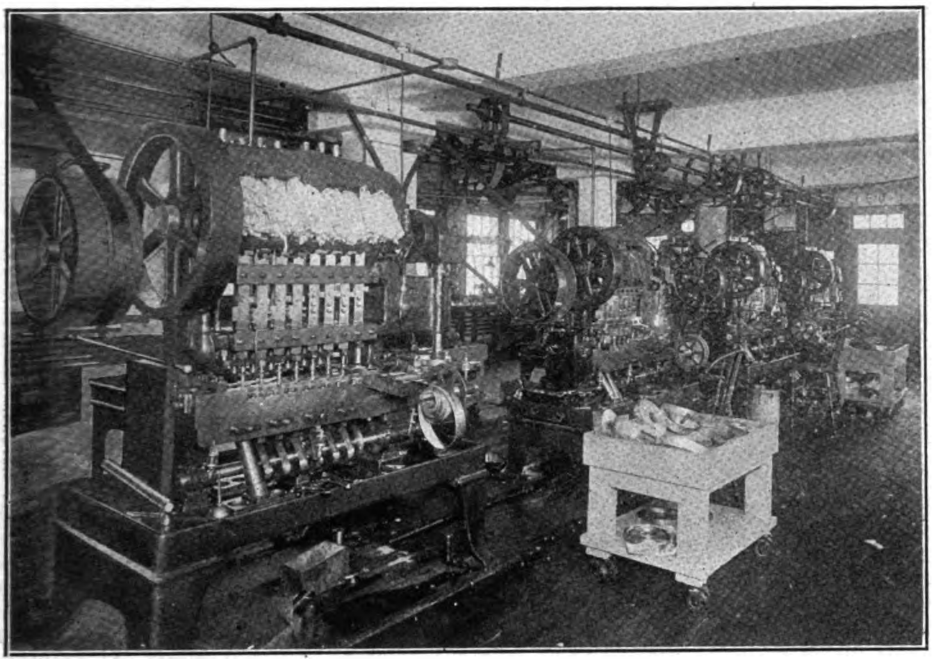
Looking Through a Part of the Timer Assembly Department. The Plant Has a Production Capacity of 3500 Timers a Day, or More Than 1,000,000 a Year.



Part of the Tool Room and Machine Shop, Wheh Is Splendidly Equipped and Perfectly Lighted, Two Factors That Make for Economy and Efficiency.

Arrangement of Work Departments.

The first floor of this building is utilized for the automatic screw machine department, and the stock rooms for raw materials and manufactured stock to be assembled, while the power and heating plant is in the rear wing. On the second floor is a tool room for the drill press, punching press and lathe rooms, the timer manufacturing and assembling department, the shipping department, the office of F. C. Hersee, treasurer and general manager of the company, and the office of the purchasing agent and the plant manager. On the third floor is the multi-



Section of the Automatic Press Department, This Demonstrating the Class of Equipment of the Plant and the Facilities for Production.

ple spindle press room, a tool room, a stock room, the "tumbling barrel" room, the inspection department and the general offices. On the fourth floor is the kitchen, the restaurant and a rest and recreation room for the employees.

The other main building is wood, two stories height, and in this is the heat treating and oil and case hardening departments. A considerable part of the structure is used for storage. All the machines and tools are practically new and many of these have been adapted for work that is exclusive with this concern. The equipment was installed with a view of obtaining high efficiency and economy.

The company employs approximately 150 workers, a considerable number of whom are women, some of whom operate machines. Women machine operators have been employed by the company since it located in Waltham, and statement is made that they have been found to be decidedly efficient and productive. This applies especially to those who have had long experience.

Filled War Work Contracts.

Because its machine equipment was adapted to production of small metal parts the company obtained early in 1916 a contract with the British government to make components for shells, and developed a special process for production by which the quality was improved and the number produced exceeded by a large margin the output of the machines used for this work by other concerns. In 1917, when the present plant was occupied, it was adapted so far as commercial production would permit to undertake war contracts, and eight of these were obtained in all. These called for upwards of 40,000,000 pieces. During the period when the demand was greatest two of the departments were operated day and night, and others would have been placed on the same production basis had help been available. The company is stated to be the first of all government contractors that completed its contract schedule ahead of the time specified. Since the armistice of the European war, which practically ended hostilities and greatly diminished the demand for war service products, the company has been converting its equipment as rapidly as conditions have permitted to produce its own specialties.

Timer Production Capacity 3500 a Day.

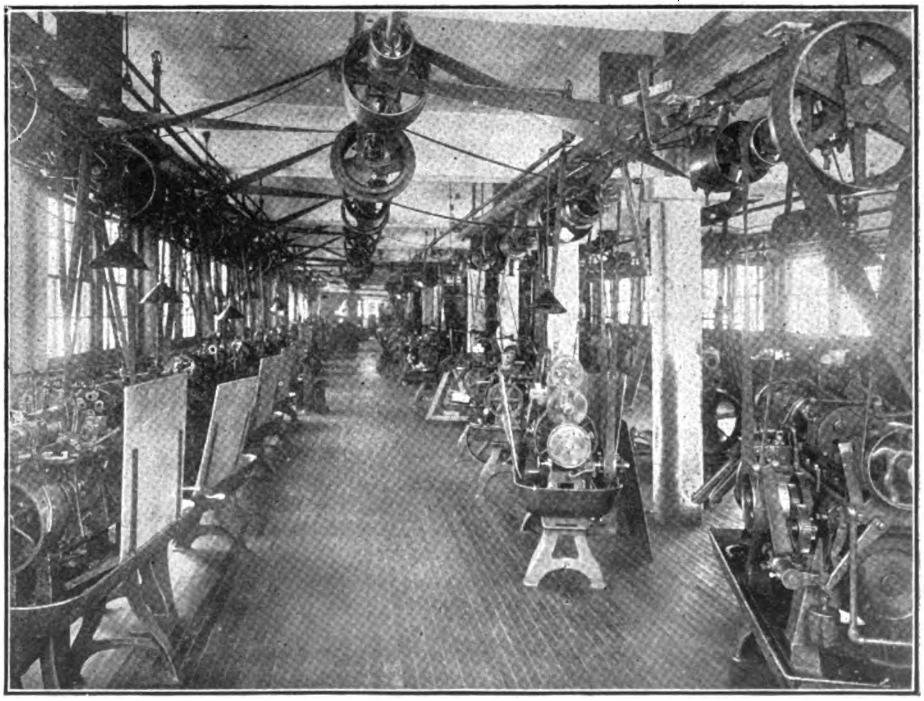
It is now in readiness to meet any demand for timers, which it produces in greatest number of its specialties, and it now has a capacity of about 3500 timers a day, or somewhat more than 1,000,000 a year. The other products are in less volume, but the outputs of each is increasing rapidly. The company has a spur track from the Boston & Maine railroad into its property, so that car load freights can be received at or shipped from the plant. The smaller shipments or receipts are shipped from or received at Boston and transferred from or to the factory by truck. These facilities are a decided advantage in that deliveries can be made without delay and orders can be filled quickly.

The general manager, F. C. Hersee, has been identified with the company since its organization, and the development of the concern has been largely because of his faith in the commercial possibilities of the Bemus timer and his judgment of the practical sales values of the other specialties. Since the company was established a number of other products have been specialized, among them being the Fogg horn, the Blazer horn and the Excel jack, this being a long handle type especially designed for garage and service stations and where heavy work is done.

How the Products Are Marketed.

The products of the company are marketed in the United States and Canada under the direction of Sales Manager A. Fraser, and through the Bailey-Drake Co., Chicago, which is the sole distributor. The Bailey-Drake Co. operates on a large scale, maintaining a general office at 1118 South Michigan avenue, Chicago, and having a sales organization that covers a very large part of the United States and the various provinces of Canada, its traveling representatives having headquarters in principal commercial centers, from which they make trips at regular intervals.

The staff is made up of well trained salesmen, whose activities are directed from the Bailey-Drake office, with which Mr. Frazer is constantly in communication. The executive of the Bailey-Drake Co. is Edward E. Drake, who has had a very long experience with the automotive industry and the trade, and his staff con-



The Automatic Screw Machine Department, Showing Four Rows of Tools and the Exceptional Lighting for the Workers.

The Executive Office: Treasurer and General Manager F. C. Hersee at Left and Sales Manager A. Fraser at Right.

sists of R. E. Voorhees, with headquarters at Seattle, whose territory consists of the states of Washington, Oregon, Idaho, Montana and Utah, and the provinces of British Columbia, Alberta and Saskatchewan in Canada; Paul Gardiner, with headquarters in San Francisco, who travels through the states of California, Arizona and Nevada; L. A. Staff, with headquarters at Minneapolis, whose regular circuit includes the states of North Dakota, South Dakota, Iowa, Minnesota and Wisconsin, and the province of Winnipeg, Canada; F. V. McGraw, with headquarters at Dallas, Tex., who covers the states of Texas, Oklahoma, Colorado, Louisiana, Arkansas, New Mexico, Kansas, Nebraska, Missouri and Wyoming; Walter Watson, with headquarters at Buffalo, N. Y., whose territory is extreme western New York, extreme northwestern Pennsylvania, Ohio, Indiana and Michigan, and Charles W. Unbehaun, with headquarters in New York City, who travels the provinces of Nova Scotia, New Brunswick and Quebec in Canada, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Delaware, West Virginia and District of Columbia.

The other states and districts and provinces not covered by the salesmen direct are reached through sales connections of the Bailey-Drake Co. The distribution is principally to large jobbing houses and through these to the various dealers. The export business is transacted througn an office of the Motor Specialties Co. at 80 Wall street, New York City, which is in charge of H. L. Cross. This division handles a considerable part of the business and has become very important, for the products of the company are widely known abroad.

The company has very systematically developed its sales department. Twice a year are called together for conference and the plans for promotion and stimulation of business are carefully determined. Careful attention is given to delivery and the shipments are made so that there shall be no delays that can be obviated. The business of the company exceeded $1,850,000 in 1917, and this year it is expected to be approximately $2,000,000.

Incidentally reference should be made to the attention the company has given to the welfare of its employees. The working conditions are ideal from the viewpoint of lighting, ventilation and other phases of sanitation, and in the restaurant excellent meals are provided at cost. In the rest room there is a victrola so that those who desire may enjoy dancing after eating. There is a series of tennis courts on the property that is free to the employees and is much used during the part of the year that outdoor recreation is practical. The company draws its employees from three residential towns and has what is regarded as a

H. L. Cross, Export Manager for the Motor Specialties Co.

Edward E. Drake, Executive of the Bailey-Drake Co., Chicago, Distributor of Mosco Specialties.

Charles W. Unbehaun, New York City and General Eastern Salesman.

Paul Gardiner, California and Southwest Salesman for the Bailey-Drake Co.

R. E. Voorhees, Pacific Coast and Northwest Salesman for the Bailey-Drake Co.

F. V. McGraw, Middle West and Southwest Salesman for the Bailey-Drake Co.

L. A. Staff, Northern Middle West Salesman for the Bailey-Drake Co.

superior class of labor. This and the extremely cordial relations existing between the company and its workers is a very substantial reason for the high efficiency that has been developed in all departments.

The company has the exclusive manufacturing right for every specialty it produces. Before developing or acquiring any product the commercial possibilities are carefully estimated and decision is based on long experience with the market. Very recently the company purchased the patent and manufacturing right for the Jiffy bushing extractor of the Jiffy Tool Co., Whitman, Mass., a tool that is especially adapted for use with Ford, Dodge, Dort, Chevrolet, Saxon and Overland cars, and is desirable both for the tool box and for the work bench of every garage and repair shop. Practical utility and wide general use insure a demand that will continue for a long period, and these are the determining factors with the company in establishing the commercial value of a device or fitment that it can exclusively control.

WILLYS HEADS NEW PROCESS DIRECTORS.

John N. Willys has been elected chairman of the board of directors of the New Process Gear Co., Syracuse, N. Y., at a meeting at which the resignations of President T. W. Meachams, Vice President T. G. Meachams and Secretary and Assistant Treasurer J. F. S. Meachams were received and accepted. At this meeting Vice President J. Allen Smith was elected president, Vice President James E. Kepperly of the Willys-Overland Co. was elected vice president, and Purchasing Agent G. W. Tapper and C. A. Neracher, formerly chief engineer of the Willys-Overland Co., were elected directors.

REVISED LIST PRICES FOR SELDEN TRUCKS.

The Selden Truck Sales Co., Rochester, N. Y., has announced that on Jan. 1 a revision of prices would be effective on all save two models, which will be as follows:

Model	Capacity	Drive	Chassis Price	Increase
TXR..	1 -ton	Int. Gear	$1900	....
TWL..	1 -ton	Worm	$2200	$100
JCB..	2 -ton	Int. Gear	$2750	....
JWB.	2 -ton	Worm	$3050	$100
NL...	3½-ton	Worm	$3850	$200
DL...	5 -ton	Worm	$5000	$50

The Edison Storage Battery Co., East Orange, N. J., has appointed Bertram Smith, for three years district sales manager, with headquarters at Detroit, assistant general sales manager and located him at the main office at East Orange.

"Governors for Tractors and Truck Engines" will be the subject for discussion at the monthly meeting of the Minneapolis Section, Society of Automotive Engineers, at the Hotel Radisson, Minneapolis, Minn., Jan. 8.

GALE IS SALES MANAGER OF COMMERCE TRUCK.

The Commerce Motor Truck Co., Detroit, which for practically all of the war was engaged in producing machines for army service, with the resumption of commercial production announced the appointment of Gard Gale, until recently a member of Eastman & Gale, Indianapolis, Ind., distributor for Commerce trucks and Dort passenger cars in several states as its general sales manager. Statement is made that Mr. Gard's success in developing business with both trucks and cars was the reason for his selection for this work.

Gard Gale, General Sales Manager, Commerce Motor Truck Co., Detroit, Mich.

HOMER HILTON TO DIRECT OSHKOSH TRUCK SALES.

Homer Hilton, for a number of years connected with different publications devoted to the automotive industry and trade, both in eastern and western territories, and later associated with the western office of one of the leading general magazines, has been engaged by the Oshkosh Motor Truck Manufacturing Co., Oshkosh, Wis., as sales manager. Mr. Hilton is widely and favorably known to the trade.

Homer Hilton, Sales Manager, Oshkosh Motor Truck Manufacturing Co., Oshkosh, Wis.

The Oshkosh Motor Truck Manufacturing Co. was formerly known as the Wisconsin Duplex Auto Co., and is building a truck driven by four wheels. The first unit to be produced is rated at two tons load capacity, but this will be followed by other sizes if the plans of the company are realized.

RUMOR OF FORD PLANT SALE NOT CONFIRMED.

Statements concerning the future of the big plant of the Ford Motor Co., at Highland Park, Detroit, have been given more or less credence of late, but these have been denied by E. G. Liebold, secretary to Henry Ford, and are seemingly based on the observations of those who have no real knowledge of Mr. Ford's affairs.

One rumor was to the effect that the plant was to be disposed of to the General Motors Corporation, and new factories erected at the River Rouge, close to the big blast furnaces developed by Ford to produce steel direct from iron ore. The property holdings of Mr. Ford on the River Rouge are very large and almost unlimited possibilities obtain for industrial expansion were this contemplated.

Building the Ford plant cost millions, and to replace it at the prices of labor and material today, to say nothing of equipment, would mean an enormous expenditure. There is no reason to believe the rumors, but there may be some basis for them. In any event there is little probability that such a large industrial change will be undertaken until the industry has adjusted itself to what may be regarded as a peace basis.

GMC BUILT VEHICLES FOR WAR WORK WORTH $13,000,000.

Statement is made that the value of the vehicles built by the General Motors Corporation to fill orders for the government for war purposes totaled more than $13,000,000. The orders included 7111 army ambulances and 2400 trucks for use at aviation fields or camps, or 9511 machines in all, for which an average of $1367 was paid. This does not include all of the orders received by the subsidiary companies, and the aggregate of all was probably considerably in excess of the total stated.

WILL SELL REO TRUCKS AND CARS IN BRITISH INDIA.

A. E. Gillespie of Bombay, India, has made contract with the Reo Motor Car Co. by which he will become the sole distributor of Reo trucks and cars in India, and the sales plan determined comprehends the establishment of agencies in 11 of the principal cities of India. Mr. Gillespie proposes to make a hard drive for business and will engage in an extensive advertising campaign.

JOBBERS CHANGE ASSOCIATION NAME AT ANNUAL CONVENTION

Philip H. Lyon New President of the Automobile Equipment Association— Propose $100,000 Fund to Defend Indicted Members.

CHANGE of name was one of the principal results of the annual convention of the National Association of Automobile Accessory Jobbers at Chicago, Dec. 17 and 18. The members of what is the representative organization of the trade journeyed homeward from the Windy City as members of the Automobile Equipment Association, which name is believed to be more nearly descriptive of the businesses engaged in. The name abandoned implied the members dealt in what was incidental to power vehicle use instead of vehicle equipment, and was inadequate in that it did not imply some of the members are manufacturers as well as jobbers or distributors.

Another result was the election of officers and the board chosen for the year to come is as follows: President, Philip H. Lyon of Chanslor & Lyon Co., San Francisco, Cal.; vice president, R. H. Englehart of Seig Co., Davenport, Ia.; chairman of the board of directors, Robert A. Stranahan of Champion Spark Plug Co., Toledo, O.; vice chairman of the board of directors, J. Ernest Millen of John Millen & Son, Ltd., Montreal, P. Q.; directors, Fred Campbell of Fred Campbell Auto Supply Co., St. Louis, Mo.; Howard M. Dine of Dine-De Wees Co., Canton, O.; Edward A. Pegau of Western Automobile Supply Co., Omaha, Neb.; Louis Schwab of Stevens & Co., New York, N. Y.; J. Ernest Millen of John Millen & Son, Ltd., Montreal; Robert A. Stranahan of Champion Spark Plug Co., Toledo, O.; Joseph M. Bloch of Gibson Co., Indianapolis, Ind., and George Brunner of Brunner Manufacturing Co., Utica, N. Y.

The members discussed with seemingly considerable favor the proposition that they engage wholly in wholesale transactions and abandon their retail stores with which they are to some extent in competition with their own customers, this being a proposal to protect the retail dealer who buys at jobbers' prices against the jobbers who buy at manufacturers' prices and make two profits through operating retail stores. Discussion of the suggestion to abandon quantity discounts, this proposing to fix scales of prices for both jobbers and dealers so there would be no discrimination in purchasing, was engaged in, but no decision was reached.

The classification of manufacturing members as "associates," they paying smaller dues and not receiving traveling expenses and the fee of $5 for attending meetings was abandoned, and all members will have equal privileges, but traveling expenses will not be paid unless the members remain through the sessions of the organization. Another condition imposed was that no member should be allowed convention expense bills who did not submit the voucher within 30 days after the convention.

One subject that received considerable attention was the approaching trial of 21 different individuals or concerns, members of the association, charged with violation of the Sherman law, so-called, which prohibits price fixing by agreement, which will be begun in New York Jan. 6. The indictments apply to 21 persons and with them 16 concerns as well. The supposition is that these will all be tried together. The men, with one exception, have been active as officers or directors of the association and in their official capacities have, according to the accusations, violated the law.

Those under indictment are:

William M. Webster, Chicago, commissioner of the association.

Charles E. Faeth, Kansas City, Mo., former president, Motor and Machinists' Supply Co.

Edward C. Graham, Washington, D. C., former vice president, National Electrical Supply Co.

Sidney B. Dean, St. Paul, Minn., former president, Nichols, Dean & Gregg.

W. W. Low, Chicago, Electric Appliance Co.

William K. Norris, St. Louis, Mo., McQuay-Norris Co.

William Sparks, Jackson, Mich., Sparks-Withington Co.

Emil Grossman, New York City, former director, Emil Grossman Manufacturing Co., who has retired as head of that company.

F. Hallett Lowell, Jr., Newark, N. J., Klaxon Co., from which he has retired.

F. B. Caswell, Toledo, O., Champion Spark Plug Co.

Harrie R. Williams, Birmingham, Ala., with the Gibson Co., Indianapolis, Ind., when indicted.

Gibson Co., Indianapolis, Ind.

Richard R. Englehart, Davenport, Ia., Seig Co.

Grant F. Discher, Milwaukee, Wis., Gemco Manufacturing Co.

Henry P. Andrae, Milwaukee, Wis., Julius Andrea & Sons Co.

George E. Edmunds, Detroit, Edmunds & Jones Corp.

Arthur M. Moody, Boston, Wetmore-Savage Co.

J. Standley Clemence, Billings, Mont., with Ballou & Wright, Billings, when indicted.

Ballou & Wright, Billings, Mont.

Sidney F. Beech, Chicago, Motor Supply Co.

Thomas M. Brooks, Chicago, former president, Automobile Supply Co.

Fred Campbell and William L. Ferrier, St. Louis, Mo., Fred Campbell Auto Supply Co.

The association assumed the defense of the defendants under the indictments and a proposal to raise $50,000 resulted in $34,000 being contributed by members, of which amount approximately $28,000 has been expended. The members are generally favorable to subscribing to a fund to defend the accused men and concerns, and those active in the cause are willing to undertake to raise $100,000 more if that amount is necessary.

Of the defendants Messrs. Webster, Graham, Williams and Clemence are indicted as individuals, but all the others named, and the companies with which they were connected, are indicted, making a total of 38 indictments in all. Of the defendants all but J. Standley Clemence have been officers.

The following concerns were elected to membership: The Auto Leather Manufacturing Co., New York City; William A. Banfield & Son, Toronto, Ont.; Hill Pump Valve Co., Chicago; Pennsylvania Piston Ring Co., Cleveland, O.; Western Manufacturing Co., Oskaloosa, Ia.; Arrow Grip Manufacturing Co., Glen Falls, N. Y.; Inland Machine Works, St. Louis, Mo.; Anderson Co., South Bend, Ind.; Bussman Manufacturing Co., St. Louis, Mo.; S. H. Gilmer Co., Philadelphia, Pa.; John W. Brown Manufacturing Co., Columbus, O.; Copeman Laboratories, Flint, Mich., as manufacturers, and Archenbold Automobile Supply Co., Waco, Tex.; James Bailey Co., Portland, Ore.; Electric and Auto Supply Co., Birmingham, Ala.; Sudger, Gravel & Fils, Montreal, P. Q.; Motor Mercantile Co., Salt Lake City, Utah; Thomas J. Northway, Rochester, N. Y.; Washington Auto Supply Co., Washington, Ill.; Wholesale Auto Supply Co., Tampa, Fla.; Chicago Auto Equipment Co., Chicago; Herlinger Auto Supply Co., Cincinnati, O. The application of the Times Square Automobile Co., which was advocated in person by Jesse Froehlich, was laid on the table until the new meeting. This concern, which has 20 branches, is eventually to abandon retailing, according to Froehlich, who maintains that he now has control, and that there is a desire to conform to business practise that has the approval of the association, this applying to "price wrecking" and under selling the recognized market prices.

The proposition that manufacturers supply catalogue inserts was not approved, but the manufacturers will be permitted to supply leaves for the data books of jobbers' salesmen. The standardization committee made recommendation that the size of catalogues be not less than six by nine inches and not more than 7½ by 10⅝ inches. The manufacturers were urged by the committee to increase the size of numbers or whatever designate the contents of cartons, this to make for easy identification on shelves, and the use of the decimal system for packing goods because this simplifies records and accounting.

The association presented a handsome silver pitcher to Sidney F. Beech, the retiring president, as a testimonial of appreciation of his services in behalf of the organization. The next meeting of the members will be at Hot Springs, Va., either in May or June.

Annual Meeting of Agricultural Engineers

WHAT will be the most important gathering in the history of the organization will be the 12th annual meeting of the American Society of Agricultural Engineers, which will take place at the Hotel Sherman, Chicago, Dec. 30-Jan. 1.

The meeting will consist of six regular sessions, which will be morning, afternoon and evening of the first day, morning and afternoon of the second day and the morning of the third day. Besides these there will be numerous meetings of the regular and special committees, and there will be gatherings incidental to the proceedings that will no doubt be of exceptional interest.

Because of the extreme need of stimulation of agricultural operations throughout the nation the meetings will probably be broader in scope than ever before, and they will probably attract a greater number of people than ever attended an event of this character.

The organization has a membership composed of designing and constructing engineers and manufacturers of farm tractors, farm power implements, farm engines, consulting engineers, editors of farm and agricultural publications, professors of agricultural engineering attached to different colleges, instructors in agricultural colleges, farm architects and agricultural specialists of all kinds, farmers and those who are identified with or practise agriculture.

The object of the association is to promote and stimulate the science and art of engineering as applied to agricultural operations. The body meets once a year, when reports are presented and papers dealing with very important subjects are read and discussed. The activities of the association are continuous, however, because the membership is constantly engaged in agricultural work, or, in the colleges, very generally in experiments, the results of which are disseminated for the practical benefit of the people as a whole. Viewed from any aspect the association is a very important organization and the information obtained by cooperation and close observation of agricultural conditions in all parts of the country are given to the public.

The present officers of the organization are Daniel Scoates, Mississippi Agricultural College, president; E. B. Sawyer, Cushman Motor Works, Lincoln, Neb.; first vice president; J. W. Dickerson, Charles City, Ia., second vice president; H. C. Ramsown, Ohio State University, Columbus, O., secretary-treasurer.

The official program for the meeting is as follows:

Monday, Dec. 30—Morning Session.

9.00—Registration and Social Meeting.
9.30—Call to Order. F. M. White, Chairman, Local Committee.
9.45—President's Annual Address. Daniels Scoates, Miss. A. & M. College.
10.00—Draft Tests of Farm Machines. E. J. Stirniman, Washington State College, Pullman, Wash.
10.15—Plow Bottom Design. C. A. Bacon, Oliver Chilled Plow Co., South Bend, Ind.
11.15—Review of Work on Plow Bottoms. Equalizers and Hitches. E. A. White, Department of Farm Mechanics, University of Illinois, Urbana, Ill.

Afternoon Session.

2.00—Barn Ventilation. W. B. Clarkson, King Ventilating Co., Owatonna, Minn.
2.45—Barn Roof Design. J. L. Strahan, Department Rural Engineering, Cornell University, Ithaca, N. Y.
3.15—Modern Developments and Practical Details in Preservative Treatment of Wood. Kurt C. Barth, The Barrett Co., Chicago.
4.00—Over-Shot Water Wheels. J. S. Fitz, Fitz Water Wheels Co., Hanover, Pa.
4.45—Analysis of Cam and Crank Motion. H. S. Dickinson, Experimentalist, Moline Plow Co., Moline, Ill.

Evening Session.

7.30—Annual Reports of Standing Committees.

Tuesday, Dec. 31—Morning Session.

9.00—The Conservation of Man Power. F. M. White, Agricultural Engineering Editor, Orange Judd Publications, Chicago.
9.45—Relation of Large Machine Units to Production. Arnold Yerkes, Advertising Department, International Harvester Co.
10.15—Wartime Standardization of Machinery and Its Effect on the Industry. H. B. Dineen, Manager, Deere & Co., Moline, Ill.
11.00—Regulation of Farm Equipment Manufacture and Distribution. Junius S. Cooke, U. S. Department of Agriculture, Washington, D. C.
11.30—Development of Rural Motor Express Lines. ...., National Automobile Chamber of Commerce.

Afternoon Session.

2.00—Kerosene as Fuel for Tractors. John A. Secor, Consulting Engineer, Advance-Rumely Co., Laporte, Ind.
3.00—The Design of a Traction Dynamometer. L. R. Gulley, Manager, The Burr Co., Champaign, Ill.
3.45—The Design, Manufacture, Operation and Care of Storage Batteries for Farm Lighting Plants. H. M. Beck, Engineer, Electric Storage Battery Co., Chicago.
4.45—Good Engineering Necessary to Success of Farm Lighting. Evan J. Edwards, National Lamp Works, Cleveland, O.

Wednesday, Jan. 1—Morning Session.

9.00—What Can the Agricultural Engineer Do Toward the Re-Education of Wounded Soldiers? J. B. Davidson, Department Agricultural Engineering, University of California, Berkeley, Cal.
9.30—A Digest of Gas Engine and Tractor Short Courses. C. K. Shedd, Iowa; H. H. Musselman, Michigan; D. Scoates, Mississippi; O. W. Sjogren, Nebraska; W. H. Sanders, Kansas; G. W. McCuen, Ohio; L. J. Fletcher, Cal.
9.30—(Separate Session for Extension Men.) Conservation Program for Agricultural Engineering Extension Service. Special subjects to be assigned to Extension Representatives from Different Institutions.
11.00—Annual Business Meeting and Installation of Officers.

BETHLEHEM STEEL COMPANY MAY BUILD TRACTORS.

Statement has been made and given wide credence that the Bethlehem Steel Corporation is to engage in the manufacture of farm tractors, but this has not been confirmed by the management. The plants that have been devoted to the production of war munitions are very large, advantageously located with reference to obtaining supplies of raw materials and shipping products, and they are equipped with the best machine and tool facilities obtainable.

The corporation has authorized the publication of a statement to the effect that undoubtedly the plants that will discontinue the production of munitions will be given over to the manufacture of products that will be required by the commercial and industrial enterprises of this and foreign nations. The tractor industry appears to have very large possibilities, especially if operations are on a large scale, and the Bethlehem corporation has the resources and the facilities to not only produce, but to exploit foreign markets to whatever degree may be desirable. For this reason there is some reason to believe that the prospective production of tractors, and possibly farm implements, has a foundation of fact.

SMALL OVERLAND CARS WILL BE SPECIALIZED.

One of the results of the reconversion of the plant of the Willys-Overland Co., Toledo, O., to vehicle manufacture, will be the production of the small Overland passenger cars, for which design has been perfected, in very large numbers. The machines will be sold for approximately $500, unless there is a change in manufacturing plans, and this price will be possible only through standardization of design and building on a scale never before attempted by the Overland company.

The Scripps-Booth Corporation, Detroit, has engaged E. G. Gunn, formerly production engineer for the General Motors Corporation, as its chief engineer.

Personal Mention of Men That You Know

Lee Pierce is now city sales manager for the southwest for Nash Motors Co., St. Louis, Mo.

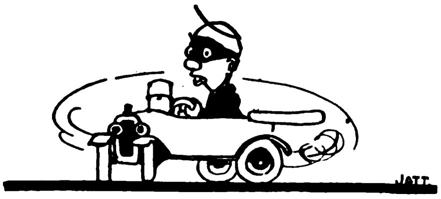
J. J. Friede has been appointed manager of the Bearings Service Co.'s branch at St. Louis, Mo. He was formerly assistant manager. This is the second change made in the management of the branch because of enlistments.

J. J. Gannon is now in charge of the Swinehart branch of Kansas City. He was formerly of Chicago.

Albert Gough, who was formerly connected with the Shaw Electric Crane Co., Muskegon, Mich., is now in charge of the service department of the Liberty Motor Car Co.

George W. Browne has been elected one of the 50 manufacturers, merchants, business and professional men of Milwaukee who will serve as a member of the "reconstruction council" of that city. The council is composed of representatives of the principal lines of industry. The purpose of the council is to facilitate the readjustment which must follow war, to the end that neither employers and employees suffer unduly. Mr. Browne is one of the leading motor car distributors and dealers in the United States and is distributor for the Willys-Knight and Overland in Wisconsin.

The latest thing in anti-thief locks for automobiles is a device that locks the steering gear in a cramped position so that if the car is operated it can only turn in a circle. It was probably the design of the inventor that after several rapid revolutions the thief would become so dizzy he would fall from the car and be readily captured or else that he would become disgusted upon discovering that he returned to the starting point each time and would abandon the machine where he first entered it. No great demand for this device has been reported as yet.



Thomas O'Brien has assumed the duties of district sales manager for the Bethlehem Motors Corporation, Allentown. His territory will be New York state and the New England states.

Jack Finney has received a commission in the United States army as captain and is now in charge of the motor repair station at Fort Jessup, Atlanta, Ga. He was formerly branch manager for the Maxwell Motor Co., Richmond, Va., and later was connected with the Linger-Alsop Co., Maxwell and Chalmer distributor.

George W. Franklin, who was formerly of the George W. Franklin Co., Detroit, distributor of Dort cars, is now connected with the Leach Motor Car Co., Los Angeles, distributor of Dort, Mitchell and Premier machines.

Harrison Goldsmith has been made secretary and business manager of the Rocky Mountain Automobile Trades Association. He succeeds Harry G. Moock, who has gone to St. Louis as assistant to President Vesper of the National Automobile Dealers' Association. Mr. Goldsmith has also been appointed secretary of the Automobile Trades Bureau of the Denver Civic and Commercial Association. He was formerly assistant manager of the Miller-Ray Motor Co., Kissel distributor for Colorado.

Miss Helen L. Roberts, St. Louis, Mo., is probably the first traveling sales representative in the accessory jobbing trade and has already proven her ability in this line. She took the place made vacant on the sales force of a large dealer in St. Louis when a salesman joined the colors for service overseas, and immediately displayed exceptional sales ability.

C. L. Loveland succeeds D. J. T. Kennedy as advertising manager of the Mason Tire and Rubber Co., Kent, O. Before entering the tire industry Mr. Loveland was advertising manager of the Waterloo Cement Machinery Corporation.

A. W. Dietzel, who for several years was superintendent of the Waukesha Motor Co., Waukesha, Wis., has retired to become works manager for the I. B. Rowell Co., Waukesha. This concern is engaged in the manufacture of farm implements, tractor parts and starters for Ford chassis.

R. C. Kimball is in charge of the office established in the David Whitney building, Detroit, by the Lakewood Engineering Co. of Cleveland, O., as factory transportation expert.

W. L. Romaine has been appointed a director of the division of oil conservation of the fuel administrator for Wisconsin, this being a new office created for the purpose of administration of regulations and rules having to do with the uses of fuel, lubricating and other oils, as well as gasoline and all petroleum products. Mr. Romaine is secretary of the Badger-Packard Machinery Co., Milwaukee, Wis.

Howard Emery is now manager of the Detroit plant of the Aluminum Casting Co., taking the position of Charles B. Bohm, who has retired. Mr. Emery was formerly manager of the company's works at Manitowoc.

L. A. Smith now has charge of the Maxwell and Chalmers sales in the eastern territory, with headquarters in New York. He was formerly assistant to T. J. Toner, director of sales and advertising of the Maxwell Motor Co., Inc., Detroit.

J. R. Turner is now manager of the Kansas City branch of the Quick Tire Service, Inc. He succeeded W. R. Chamberlain.

Louis Klee, who was formerly manager of the Wilmington, Del., branch of the White Co., has been appointed managing secretary of the highway transportation committee of Delaware.

L. F. Collins is now sales manager of the Nash Motors Co., Kansas City, Mo., succeeding H. C. Hart, who recently received a captain's commission in the Ordnance Department.

Dwight Davis has become associated with the Evertight Piston Ring Co., St. Louis, Mo. He was formerly assistant general manager of the Hyatt Roller Bearing Co.

J. E. Baum has assumed the duties of service manager of the Philadelphia Nash Motors Co. He was formerly connected with the factory service department of the company.

In these days of high gasoline prices and high prices for everything, including automobiles, why not make your own car. It's not such a tough job, Bill Powell of Chicago, Ill., says, and he has a "self-made" car to back his statement that any man with two hands and a head can turn out a "bus" that makes up in efficiency what it lacks in size.

Bill wrote to the Remy Electric Co. of Detroit and Anderson, Ind., about his baby motor car a few days ago, saying that he has used a motorcycle engine and a Remy generator for ignition and lighting.

The power plant is a two-cylinder, 11 horsepower engine, and the wire wheels are fitted with airplane tires, which Bill says "make it pretty soft." As the car is extremely light, Powell avers that "the gasoline consumption is unusually low."

J. P. Guyer is now manager of the branch of the Packard Motor Car Co. at Bethlehem, Pa. He succeeds J. E. Huggins, who has resigned.

J. K. Gilchrist, who has been acting as southwestern representative for Edward A. Cassidy Co., with headquarters at Dallas, Tex., will become associated with C. L. Dupuy, southwestern division sales manager of the Selden Truck Sales Co. of Rochester, N. Y. For the time being Mr. Gilchrist will be located at Dallas, Tex., in charge of sales for the Texas Truck Co., Selden distributors in the State of Texas.

L. F. Schoellkopf has been re-elected president of the Madison Association of Commerce. He is head of the Schoellkopf Co., Ford dealer, Madison, Wis.

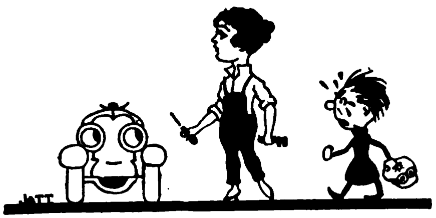
H. H. Shuart is now associated with the executive staff of the Denby Motor Truck Co., Detroit. He was formerly manager of the Detroit Automobile Dealers' Association.

Frederick J. Sickert, Jr., has received a commission as first lieutenant in the Motor Transport Corps at Camp Holabird, Md. He was formerly president and manager of the F. J. Siekert Co., Milwaukee, dealer in motor trucks.

A. W. Dietzel has resigned as superintendent of the Waukesha Motor Co., Waukesha, Wis., to accept the position of works manager of the L. B. Rowell Co., Waukesha, manufacturer of Ford starters, tractor parts and farm implements.

R. J. Miller, formerly with the Studebaker, is now in New England to take charge of the work of aiding the dealers selling Cleveland tractors. His headquarters is with A. H. Sowers, the eastern Massachusetts agent at Boston.

A real 1918 edition of the modern business woman holding forth in a business establishment on Massachusetts avenue, Boston, is an expert scientist on motor car carburetors. Hundreds of times a day this girl is called upon to test carburetors, direct their repair and explain the mysteries of this complicated accessory to car buyers and operators. The firm is well pleased, for when an angry customer dashes into the trouble room burning with a lot of fiery language which he would like to unburden, he is compelled to desist from the motives of chivalry and soon depart with a smile with the trouble entirely adjusted.



John F. Shuford has resigned as manager of the wholesale department of the Bittel-Leftwich Co., and has started a place for himself as "supply exchange." He is also a distributor for the eastern half of Missouri for the Disco starter for Fords and is jobbing a tire repair material that is made after a private formula.

C. L. Hodgson, formerly manager of the Omaha branch of the Bearing Service Co., has been appointed central district manager of the Chicago branch. T. L. Hutchinson succeeds Mr. Hodgson in Omaha. He was formerly a special representative.

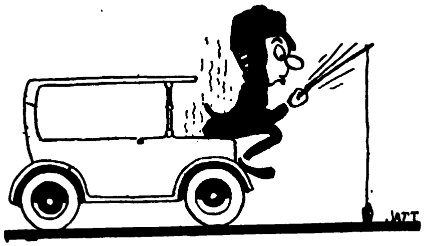
A. E. Schaefer has become sales manager of the Gramm-Bernstein Motor Truck Co., Lima, O. He was at one time associated with the Sherwin-Williams Paint Co. and later served as manager of the Abbott Motor Co.

E. L. Evans, formerly chief inspector of the plant of the Oil-Less Bearing Co., Bound Brook, N. J., has been appointed superintendent of plant No. 1.

S. E. Cole is now manager of the Omaha branch of the H. W. Johns-Manville Co, succeeding Charles W. Simms, the former manager. Mr. Cole has had experience in various fields.

James A. Bennett has been appointed purchasing agent of the Connecticut Telephone and Electric Co. of Meriden, Conn. He was formerly connected with the sales department of the company.

No matter what Winter does to the general landscape the motorist takes advantage of it. When the New Year was ushered in by an Arctic transformation the Hudson river became a tempting ice bound level. This condition brought about a new sport—fishing from an automobile. Fishermen and bird shooters had several glorious days pursuing their prey up and down the frozen river.



C. W. Stephens has become associated with the Detroit Twist Drill Co. as manager of sales. He succeeds Nelson J. Smith, who is now assistant to President Muir B. Snow.

A. E. Walden has resigned as experimental engineer of the Chalmers Motor Co., Detroit, to take charge of an experimental station at Indianapolis under Capt. D. M. Lasley. He has been with the Chalmers company for seven years.

O. C. Bornholt has been appointed mechanical engineer of the Buick Motor Co., Flint, Mich. Mr. Bornholt was formerly factory manager of the Holley Kerosene Carburetor Co., Detroit.

E. V. Rippingille has returned to his duties as assistant sales manager of the Hudson Motor Car Co., Detroit. When United States entered the war Mr. Rippingille went to Washington, where he was engaged in special work for the government.

R. R. Cook is now assistant sales manager of the Lalley Electro Lighting Corporation. He was one of the field organizers of the company. Previous to this connection he was sales manager of the Cadillac Motor Car Co.

W. T. Norton, Jr., has returned from special work in France in connection with motor transportation. He was formerly chief engineer of the manufacturing division of the Selden Truck Sales Co. Mr. Norton has now been assigned to the executive branch, Engineering Division, Motor Transport Corps, at Washington. Mr. Norton was succeeded as chief engineer of the Selden company by John R. Coleman, but remains with the company as consulting engineer.

E. T. Sutton, formerly district manager of the Denby Motor Truck Co., has been transferred to Cleveland and will travel in Ohio, Kentucky, West Virginia and parts of Pennsylvania and Virginia. His headquarters are with the Ohio Oldsmobile Co.

A. J. Brechtel has succeeded Earl R. Carpenter as manager of the Kansas City, Mo., branch of the Studebaker Co. Mr. Brechtel was formerly at the factory. Mr. Carpenter is now manager of the Los Angeles Studebaker branch.

B. T. McDonald, Jr., is now superintendent of the Moline Plow Co. to succeed J. L. Irving, who becomes vice president and general manager. Mr. McDonald was formerly with the Poughkeepsie and Stoughton branches and also founded the McDonald Pitless Scale Co., which was absorbed by the Moline company eight years ago.

Richard A. Watson has resigned as secretary and production manager of the American Bronze Corporation, Berwyn, Pa. He still remains as a member of the board of directors.

Martin V. Kelley, president of the Martin V. Kelley Co. of Toledo, O., is also an author of a book entitled "Theme Advertising Co." Mr. Kelley outlines a new scheme for getting greater results.

E. L. Allis has been appointed general manager of the Boston branch of the Motor Car Equipment Co., New York. He was formerly in charge of sales of that branch. Harry Watkins will be Mr. Allis' assistant.

Some car thief who does not respect honest toil had the innate meanness a few nights ago to steal the automobile belonging to a washer woman in Arlington, Mass. The car was later recovered by the roadside where the thief had left it after using up all the gasoline. The publicity arising from the incident was the first revelation to the world that this really modern washer woman introduces into her work a motor car, with which all her work is called for and delivered, just like a modern machine laundry.

Kelly R. Jacoby and Edward H. Belden have been elected vice presidents of Willys-Overland. Mr. Jacoby, who is made vice president in charge of purchases, has had long experience. He had been general manager of the Miami Cycle and Manufacturing Co., Middletown, O. He first started as a director of service, afterward assistant to First Vice President C. A. Earl. Mr. Belden is in charge of engineering. He is the inventor of the gearset bearing which bears his name. He has been associated with the Packard organization as body engineer. About two years ago he joined the Willys-Overland and has been in charge of the engineering department.

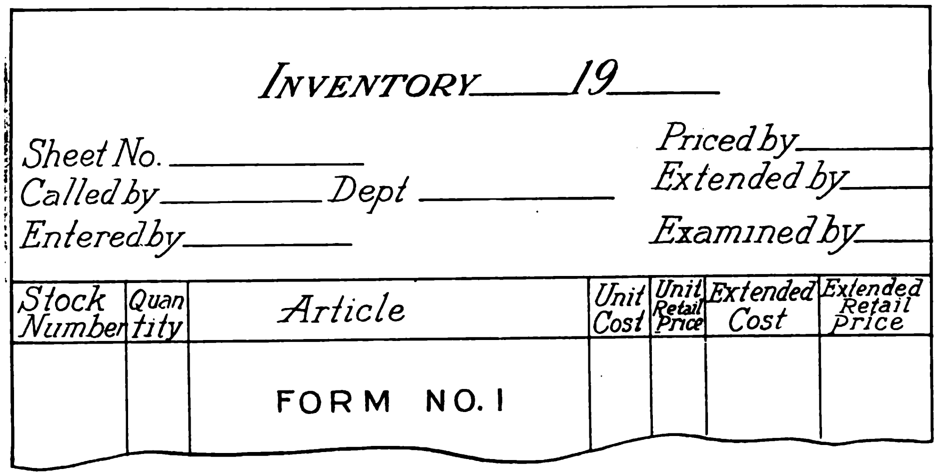
Raymond Wice has been released from the Officers' Training School at Camp Pike, Ark., and is again with the Hudson-Phillips Motor Car Co. at St. Louis.

G. E. Golder has been appointed manager of the Garford branch in St. Louis. He was formerly assistant manager of the Garford branch in Chicago.

"A Simplified System of Accounting"

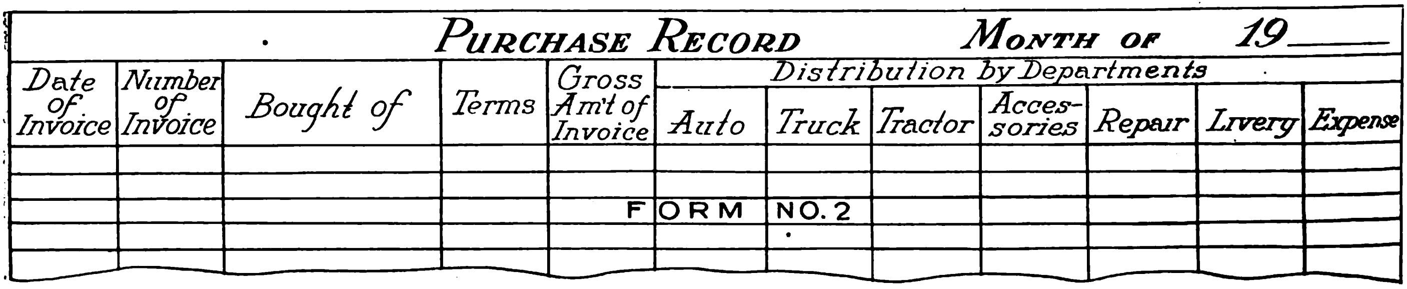
By Walter Engard.

IT IS conservatively estimated that fully 90 per cent. of the business concerns of this country do not know how much money they made during the past year, nor do they know what it has cost them to operate their business. The most of them have some kind of a record of receipts and expenditures, and now and then they strike a balance. But it is absolutely necessary for business men to install some accounting method whereby they shall know and not merely guess at such important matters.



INVENTORY 19						
Sheet No.				Priced by		
Called by		Dept		Extended by		
Entered by				Examined by		
Stock Number	Quantity	Article	Unit Cost	Unit Retail Price	Extended Cost	Extended Retail Price
		FORM NO. 1				

An almanac, which could be slipped into a convenient pigeon hole of the old fashion roll top desk used to be about the whole sum and substance of the bookkeeping system of a good many dealers.



PURCHASE RECORD					MONTH OF 19						
Date of Invoice	Number of Invoice	Bought of	Terms	Gross Am't of Invoice	Distribution by Departments						
					Auto	Truck	Tractor	Accessories	Repair	Livery	Expense
				F	ORM	NO. 2					

But with closer competition, higher costs of operation and a narrower margin of profit, most merchants are finding that they have to give more attention to their record system. The almanac, as a general ledger, has gone the way of the plump cats that used to doze in the best window displays.

The successful dealer will make it a point to know every day the important facts and figures of his business. Some of the figures he will know each day are:

(1) Total cash receipts.
(2) Total sales.
(3) Total cash disbursements.
(4) The daily cash balance.
(5) The daily bank balance.
(6) Accounts payable.
(7) Accounts receivable.
(8) Total purchases.
(9) Balance stock on hand.

But in order for him to know these figures each day he must first install an accurate and complete system of accounting.

This system should be simple, yet accurate, and easy to operate. It should be convenient and economical. It should afford the merchant protection and give all the information necessary for the successful management of his business. The best system for any business is one that will give this information with the least amount of effort.

It shall be my endeavor in this article to present to you a simplified system of accounting, taking it up step by step, so that it shall be thoroughly understood by all. This system is as complete and as accurate as any system you can install. With these records you will have before you the facts of your business in such a way that you will know what to do next in your merchandising, just what stock to push, what stock to buy, how each department is progressing, and a thorough knowledge of the important facts of the business. The whole thought in the devising of this system is to make it a guide to better retailing instead of a mere matter of record keeping. All the necessary details are cared for in such a simple manner that you will know each morning exactly how you stand. No dealer can direct his business properly without having just such facts constantly available.

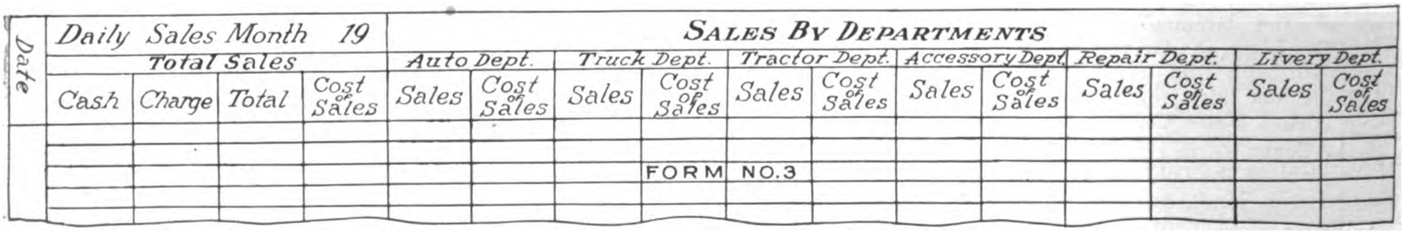
Good management is not a matter of guess work. You don't use good judgment when you guess. There is but one right way to do a thing and there is but one right way to install a system of accounting properly. To give you a proper basis for future control of your business the system must be properly installed.

The first thing to do is to take a physical inventory of all stock on hand. This is the only way you can be sure that future information shown by the system is going to be accurate.

It will also be necessary to stock number every article of stock. This should be done before the inventory is taken or else right at the time the inventory is taken. Tickets upon which the name of the article, the manufacturer, the stock number, the cost and the selling price can be entered should be provided and then go through the stock giving each article its stock number. Articles of the same kind, make and size and price can bear the same stock number, but all articles of a different kind, price, make and size should bear a separate number. That is, all tires of the same brand and size and price will bear the same stock number, but tires of another brand, although they are of the same size and price, shall bear an entirely different stock number.

After all articles have been stock numbered you can then proceed with the inventory.

In taking the inventory it is best to use regular "Inventory Sheets," form No. 1 accompanying this article. These sheets are 8x11 inches. Now in taking the in-

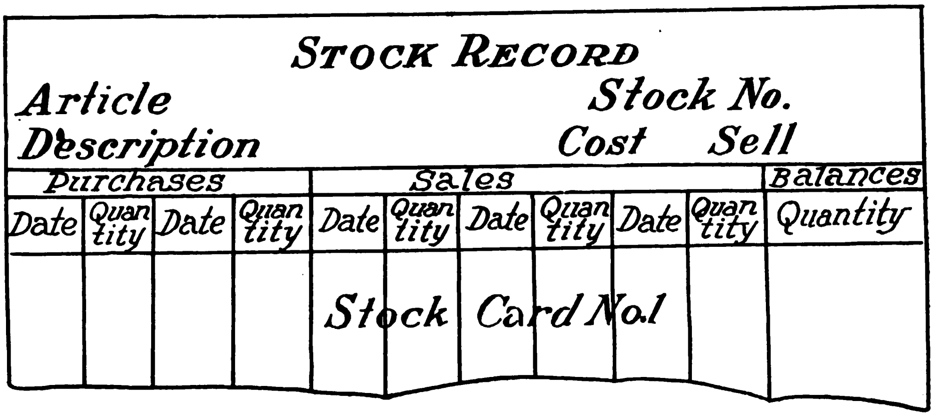


Date	Daily Sales Month 19				SALES BY DEPARTMENTS													
	Total Sales				Auto Dept.		Truck Dept.		Tractor Dept.		Accessory Dept.		Repair Dept.		Livery Dept.			
	Cash	Charge	Total	Cost of Sales	Sales	Cost of Sales	Sales	Cost of Sales	Sales	Cost of Sales	Sales	Cost of Sales	Sales	Cost of Sales	Sales	Cost of Sales		
							FORM	NO.3										

ventory you will take the stock in each department separately and keep the inventory sheets of each department separate. You will note that upon this sheet you may enter the date upon which the inventory is taken, the sheet number, the name of the person who calls the goods off, the name of the person who enters the goods as they are called, and the name of the department in which the inventory is being taken. Each sheet should be numbered so that if one should become lost you will notice that one sheet has been lost and look it up or else take the stock over again.

Upon the body of this sheet will be entered the stock number of the stock, the quantity in stock, the name of the article, the unit cost and the unit retail price. The extended cost and extended retail price will be left for the proprietor to fill out or some one well posted on prices.

As soon as the inventory is finished you will then fill out a "Stock Record" card, illustrated by the accompanying cut, for every article, using card No. 1 for all such articles as tires, spark plugs, tubes, etc., and card No. 2 for gasoline and oils, entering upon these cards the name of the article, the stock number, the cost and the selling price, also a description of the article. Then from the inventory sheet you will enter the total amount on hand under the heading "Purchases" in the column marked "Quantity." These cards provide for a perpetual inventory of all stock and when given your careful attention each day they will show you at any time the exact amount of each article you have on hand. These cards should be kept in an index file and filed alphabetically, making them easy to find.

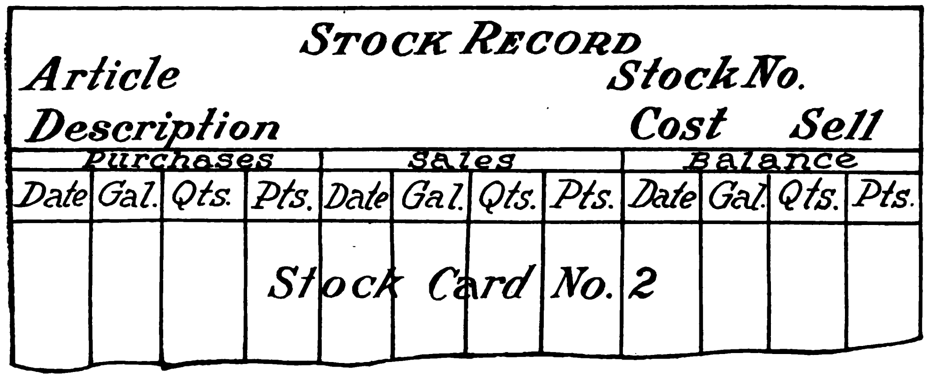


STOCK RECORD

Article / Stock No.

Description / Cost / Sell

Purchases				Sales						Balances
Date	Quantity	Date	Quantity	Date	Quantity	Date	Quantity	Date	Quantity	Quantity
				Stock Card No. 1						



STOCK RECORD

Article / Stock No.

Description / Cost / Sell

Purchases				Sales				Balance			
Date	Gal.	Qts.	Pts.	Date	Gal.	Qts.	Pts.	Date	Gal.	Qts.	Pts.
			Stock Card No. 2								

In using this system it is necessary to have a sales slip made out for every sale, whether it be for 10 cents or $10, for cash or charge. The salesman will enter upon this sales slip the name of the article, the stock number and the price received. These sales slips will then go to the office and there kept until the close of the day. When business is over for the day you will take these sales slips and total the number of each article sold and turning to the "Stock Record" cards of all articles sold you will enter on each, under the heading of "Sales" the number sold. The column headed "Balances" is provided so that you can carry out the balance stock on hand at the close of each week.

When a new supply of any article is purchased you will enter the amount on the card under the heading "Purchases," entering the date and the quantity.

These cards shall prove a great help in buying, for when placing an order for any particular article you will turn to your Stock Record card for that particular article and there you have the amount you have on hand, and from the sales record you can gage the sales possibilities of that article and avoid overbuying.

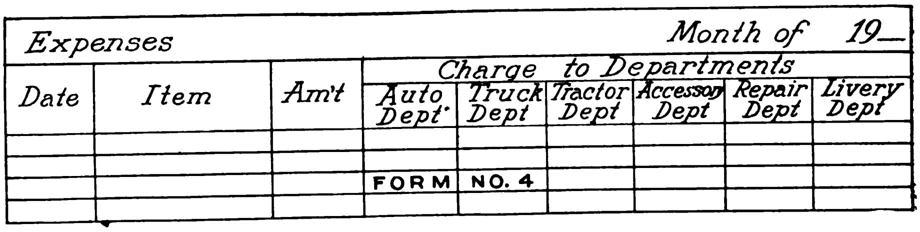
Form No. 2 of this system is known as the "Purchase Record." This form provides for keeping an accurate record of all purchases. All invoices received for purchases will be held by the office until the goods have been received and the invoice checked and O. K. Then as soon as the invoice has been O. K. a record of the purchase will be entered upon this form, entering the date and number of the invoice, the name of the manufacturer purchased of, the terms of the purchase and the gross amount of the bill. Then you will distribute the purchase to the different departments, charging each department with the amount of the articles billed on the invoice that go into the department. All articles billed on the invoice which are to be used in the shop, such as waste, oil, etc., will be charged in the last column headed "Expense" and will then be transferred to the Expense Sheet, form No. 4, which will be taken up later. Any cash purchases made will be entered in the same manner.

With form No. 3 you are able to keep an accurate record of the sales in each department, also the cost of those sales, enabling you to determine the gross profit made in each department. Cash and charge sales will be kept separate for the entire business, but not so for each department. At the close of the day you will take your sales slips and divide them according to departments and total them and you have the total sales for each department. Then taking the "Stock Record" cards for the articles sold you will take off the cost price of the article sold and total them and you have the total cost of the sales, which is entered in the column headed "Cost of Sales" for each department.

Now with form No. 4 you are able to keep the expense in each department separate. Under the heading "Date" will be entered the date upon which the expense is paid for. Under the heading "Item" will be entered the item of expense, as labor, rent, advertising, etc., and under the heading "Amount" will be entered the total amount paid out. At the close of the month when this column is totaled you have the total expense for the business. Under the heading "Charge to Departments" you will distribute the expense charges. In the case of salaries you will charge each department with its full share of the salary expense. Rent will be distributed to the different departments according to the space they occupy. Advertising will be charged to each department according to the space used for each department. Every item of expense should be charged into the expense account somewhere. Office expenses will be apportioned to the several departments according to the volume of business done.

Form No. 5 is the "Sales and Recapitulation" sheet and provides for showing the progress of the business month by month. Under the heading "Sales" will be entered the sales for each department, opposite the name of the department and under the month during which they were made. Under the heading "Cost" will be entered the cost of those sales. These

(Continued on Pages 44 and 45.)



Expenses / Month of 19—

Date	Item	Am't	Charge to Departments					
			Auto Dept	Truck Dept	Tractor Dept	Accessory Dept	Repair Dept	Livery Dept
			FORM	NO. 4				

TO JOURNAL SUBSCRIBERS

In the following pages you will find listed, priced and described, a large number of articles that are used generally by vehicle owners. With hardly an exception jobbers and dealers can supply any of the parts, fittings, accessories, equipment, machinery, or tools dealt with.

The first installment of similar articles was published in October issue of Accessory and Garage Journal. In the following numbers of this magazine many hundreds of these descriptions will be published and this great feature will be continued until practically all standard lines produced will be described.

In connection with the last installment a complete index will be published, giving issue and page number of the journal in which the articles and description was published. If prices or delivery conditions change in the meantime corrections will be made in the final index.

By retaining all numbers subscribers will have the most complete catalogue of desirable car equipment ever issued. It will have all the good features of a trade directory, a buyer's guide and a trade reference book.

Owing to new publishing requirements back copies of the Journal can not be supplied and we earnestly request all subscribers to file and retain copies.

IN THE JANUARY NUMBER OF THIS MAGAZINE 200 ARTICLES WILL BE DEALT WITH AND SPECIAL ATTENTION WILL BE GIVEN TO EQUIPMENT THAT WILL ADD TO THE CONVENIENCE AND COMFORT IN THE USE OF CARS DURING THE WINTER SEASON.

Owing to the uncertainty in securing material to this time it has been almost impossible for many manufacturers to be specific in stating delivery dates. By referring to articles you will find stated at the end of practically all descriptions the delivery conditions. When that detail is not mentioned it is assumed that any reasonable demand can be taken care of promptly.

Directory of Automobile Accessories Parts and Supplies, With Descriptions, Illustrations and Prices

This is the third part of the directory of accessories, parts, fittings, machinery, tools, equipment and supplies which is being published in the Automobile Journal and Accessory and Garage Journal. Articles that are now in production or which are being carried in stock and that can be secured by jobbers and dealers are described and illustrated, and the prices and delivery conditions are stated. This information, which can be obtained through no other medium, is being compiled from the most recent advices direct from manufacturers.

Several thousand articles will be described in this way in the forthcoming issues of the two publications up to the opening of the Spring season. In the descriptions given, where no mention is made of the maker's ability to deliver goods, it is to be assumed that the same situation would exist as under normal conditions and that the article would be procurable, subject to the transportation and manufacturing considerations of the present time.

Owing to present publishing conditions, extra copies cannot be supplied, so subscription orders should be placed at once.

Page

Accessory Display Case—Detroit Show Case Co., 459 Fort St., W. Detroit, Mich..20

Accessory and Parts Stock Bin Hobart Bros Co., Troy, O....................31

Adjustable Holder—Leslie E. Moore, 1042 S. Olive St., Los Angeles, Cal........28

Adjustable Wrench—Goodell-Pratt Co., Greenfield, Mass......................36

Alsop-All-Spark—Alsop Triple Ignition Corp., 1765 Broadway, New York City.30

American Sonoscope—American Electric Co., State and 64th Sts., Chicago, Ill..28

Anchor Top and Body—Anchor Top and Body Co., Cincinnati, O...............32

Answer to Spark Plug Troubles—Hilborn Co., Inc., 535 Canal St., New York, N. Y. 34

Apco Brake Shoe Adjuster—Apco Mfg. Co., Providence, R. I..................30

Atkins Hack Saw Blades—E. C. Atkins & Co., Inc., Indianapolis, Ind..........32

Auburn Valve Lifters—Auburn Ignition Mfg. Co., Auburn, N. Y.............34

Automatic Simplifier—Marion Metal Products Co., Marion, Ind............34

A-Y Fordlock — Angsten-Koch Co., Princeton Ave., Chicago, Ill..........39

Babbitter for Ford Cars—Burlington Machine Works, Burlington, Ia.........27

Badger Cut Out—Auto Parts Mfg. Co., 313 Milwaukee St., Milwaukee, Wis..24

Bayne "B B" Auto Power Pulley—Bayne Mfg. Co., Bushnell, Ill...............35

Best Valve Lifter—Bayne Mfg. Co., Bushnell, Ill...............................35

B. F. S. Electric Valve Grinder—B. F. S. Mfg. Co., 54 Hermon St., Worcester Mass. 25

Page

Break-Not Storage Battery Tester—E. Edelmann Co., 119 W. 42nd St., New York City....43

Bristol's Steel Belt Lacing—Bristol Co., Waterbury, Conn....29

Bristo Safety Set Screw—Bristol Co., Waterbury, Conn....40

Buda Valve Lifter—Buda Co., Harvey, Ill. 28

Buell Explosion Whistle—Buell Co., 1610 S. Michigan Ave., Chicago, Ill....28

Buffington Folding Upholstered Stools—C. A. Buffington & Co., Berkshire, N. Y. 41

Bulldog Luggage Carrier—Bulldog Luggage Guard Co., 37 Elm St., Nashua, N. H....24

Burn Oil Device—Burn Oil Device Co., Inc., 129 N. Jefferson Ave., Peoria, Ill..27

B-W Ammeter—Ballman-Whitten Mfg. Co., 4440 Olive St., St. Louis, Mo....36

B-W Magneto Tester—Ballman-Whitten Mfg. Co., 4440 Olive St., St. Louis, Mo.28

Carbo Valve Grinding Compound—Carborundum Co., Niagara Falls, N. Y...38

Ceco Valve Rotator—Continental Engineering Corp., Omaha, Neb....38

Cellbeam Concealed Spot Lamp—Cellbeam Corp., 501 Fifth Ave., New York City....35

Circular Glass Cutter—Goodell-Pratt Co., Greenfield, Mass....37

Clark Tonneau Windshield—A. N. Clark & Son, Plainville, Conn....34

Clean-All Windshield Cleaner—Clean-All Windshield Corp., 257 Washington St., Buffalo, N. Y....27

Cochran Spring Oiler—Cochran Pipe Wrench Mfg. Co., 7800 Woodlawn Ave., Chicago, Ill....36

Cole Gasoline Gauge—Halewick-Muehlhausen Co., 2350 West Austin Ave., Chicago, Ill....40

Combination Tester—Jefferson Electric Mfg. Co., 426-430 South Green St., Chicago, Ill....40

Common Sense Auto Polish—Common-Sense Mfg. Co., St. Louis, Mo....40

Consol Automatic Oiler—Consolidated Machine Co., Detroit, Mich....39

Corbin-Brown Speedometers — Corbin Screw Corp., New Britain, Conn....35

Cork Insert Ford Fan Belt—Advance Automobile Accessories Corp., Dept. E 3-1, 56 East Randolph St., Chicago, Ill. 25

Crane Power Tire Pump and the Crowe Mechanical Fan Belt—Bay State Pump Co., 100 Purchase St., Boston, Mass...37

Crone Primer—F. G. Crone, 334 Genesee St., Buffalo, N. Y....26

Cuno Auto Cigar Lighter—Cuno Engineering Corp., Meriden Conn....43

Cuno Timer—Cuno Engineering Corp., Meriden, Conn....33

Curtain Light—J. P. Gordon, Columbus, O....38

D & D Spark Plug—D. & D. Co., 20 E. Jackson Blvd., suite 810, Chicago, Ill..41

Delion Cord Tread Tires—Delion Tire and Rubber Co., Trenton, N. J....28

Detroit Motor Governor—Forthe Detroit Motor Governor Co., Detroit, Mich....35

Dixon's Non-Leak Grease—Joseph Dixon Crucible Co., Jersey City, N. J....35

Dyer Towing Device—G. H. Dyer Co., Cambridge, Mass....27

Dynolite—Detroit Starter Co., Detroit, Mich....36

Eclipse Valve Grinder—Eclipse Valve Grinder Co., 415 Bonfils Bldg., Kansas City, Mo....40

Ekern's Portable Work Bench and Engine Stand—Ekern Bros. Mfg. Co., Flandreau, S. D....29

Electrically Heated Valve—Jones Electric Machine Works, 1319 Fletcher Savings and Trust Bldg., Indianapolis, Ind....35

Essansee Lock—Essansee Lock Co., Land Title Bldg., Philadelphia, Pa....36

E. & S. Power Hack Saw—Ellis-Smith Mfg. Co., Inc., 216 Niagara St., Buffalo, N. Y....41

Ever-Right Gasoline Gauge—Ever-Right Products Corp., Broadway at 57th St., New York City....31

Ever Safe Emergency Brake Shoe for Fords—Never Break Products Co., Bangor, Pa....43

Esy-Out Extractor Sets—Cleveland Twist Drill Co., Cleveland, O....36

Fanhorn—Art Metal Mfg. Co., Cleveland, O....30

Fire Extinguisher—Luzerne Lumber Co., Luzerne, Pa....30

Flexo Laminated Belts—Detroit Leather Works, Detroit, Mich....37

The Fogger—Motor Steam Generator Co., 417 Heed Bldg., Philadelphia, Pa..24

Fordimmer and Fordalarm—Detroit Novelty Mfg. Co., Marquette Bldg., Detroit, Mich....27

Friestedt Hydronizer—Friedstedt Mfg. Co., 2934-38 W. Lake St., Chicago, Ill.37

G. A. C. Accelerator Foot Rest—General Appliance Co., 127 Federal St., Boston, Mass....32

G. B. Valve Tool—G. B. G. and Mfg. Co., 299-303 Franklin St., Hempstead, N. Y.25

Gant Meter—E. M. Gant Mfg., Inc., Ethridge, Tenn....28

Garage Bookkeeping—Thomas J. Harton & Co., Inc., Church and Worth Sts., New York City....39

Gardner Thermostat Carburetor—Gardner Carburetor and Brass Works, Summit Ave. and Wabash R. R., Detroit, Mich....26

Gasco Economizer—Gasket Supply Co., 18th and Ludlow Sts., Philadelphia, Pa....37

Garco Gaskette Roll—General Asbestos and Rubber Co., Charleston, S. C....27

Gear Shift Extension—M. & H. Novelty Co., 857 East 24th St., Los Angeles, Cal....25

Gilbert & Barker T-30 Handling Outfit—Gilbert & Barker Mfg. Co., Spingfield, Mass....41

Glare-Off Headlights—Glare-Off Co., 1777 Broadway, N. Y....37

Gordon Motor Crib—Gordon Motor Crib Co., 27 South Water St., Chicago, Ill..37

Greb Extension—Greb Co., 202 State St., Boston, Mass....36

Halladay Steering Wheel—L. P. Halladay Co., Streator, Ill....33

Handy Push Button—Francis-Rand Co., Cleveland, O....33

Handy Terminal—Francis-Rand Co., 400-401 Erie Bldg., Cleveland, O....34

H B Battery Charging Set—Hobart Bros., Troy, O....33

H. & H. Steel Locker—Hart & Hutchinson Co., 654 Oliver Bldg., Boston, Mass....27

H-M Metal Radiator Cover—H-M Mfg. Co., Indianapolis, Ind....39

Hobart Battery Charger—Hobart Bros. Co., Troy, O....31

Hoggson Auto-Time Register—S. H. Hoggson & Co., 27 Thames St., New York City....37

Holtzer-Cabot Gasoline Strainer—Holtzer-Cabot Electric Co., Roxbury, Mass.41

Hoosier Patch—Hoosier Rubber Mfg. Co., Inc., Starks Bldg., Louisville, Ky.39

Howe Counter Display—Howe Mfg. Co., Michigan Ave., Chicago, Ill....41

Howe Searchlight Bracket—Howe Mfg. Co., Chicago, Ill....40

Howe Spotlights—Howe Mfg. Co., 1722 S. Michigan Ave., Chicago, Ill....33

Hoyts Quality Breather and Oil Filler Pipe—Hoyts Auto Supply Co., 370 Fairfield Ave., Bridgeport, Conn....41

Hoyts Rear Axle Truss—Hoyts Auto Supply Co., 370 Fairfield Ave., Bridgeport, Conn....25

Hudson Type Cylinder Head—Green Engineering Co., 34 S. St. Clair St., Dayton, O....31

Hurricane Hook—Joseph N. Smith & Co., Detroit, Mich....39

Ideal Junior Seat—Ideal Brass Works, Indianapolis, Ind....26

Jefferson Battery Replacement Coils and Fittings—Jefferson Electric Mfg. Co., Congress and Green Sts., Chicago, Ill.31

Kahn Automatic Valve—Armstrong Rubber Co., Inc., 118 Adams St., Newark, N. J....24

K-D Tail Lamp Assembly—K-D Lamp Co., Cincinnati, O....24

Knickerbocker "Made Right" Motor Luncheon Outfit—Knickerbocker Case Co., Fulton and Clinton Sts., Chicago,

Laminum—Laminated Shim Co., Inc., Canal St., New York City....43

Lawco Silencer—F. H. Lawson Co., Cincinnati, O....32

Letts Manfold Heater—Hill-Smith Metal Goods Co., 88 Pearl St., Boston, Mass.43

Maltby Spray Primer—Maltby Auto Specialty Co., Battle Creek, Mich....25

Martin Door Pocket—Martin Mfg. Co., Lancaster, O....29

Martin Tire Cover—Martin Mfg. Co., Lancaster, O....28

Marvel Spark Intensifier—Marvel Mfg. Co., 1020 Washington Blvd., Oak Park, Ill....24

Master Calorite Spark Plugs—Hartford Machine Screw Co., Hartford, Conn...39

Masters Gasoline Meter—Irvin W. Masters, Muncie, Ind....32

Midway Floor Board Holder—Midway Mechanical Co., 1555 Selby Ave., St. Paul, Minn....24

Milbradt Step Ladders—Milbradt Mfg. Co., St. Louis, Mo....29

Moore's Mud Hole Skid—Langley & Schultze, Louisville, Ky....26

Moto-Meter — Moto-Meter Co., Long Island, N. Y....32

Motor Set—Goodell-Pratt Co., Greenfield, Mass....36

National Mix-O-Lock—National Motor Supply Co., Painesville, O....43

National Rubber Tire Filler—National Rubber Filler Co., Midlothian, Tex....43

National Shock Absorber—J. S. Lang Engineering Co., 5 Park Square, Boston, Mass....24

New Era "Better" Spring Bumpers—New Era Spring and Specialty Co., 1177 Hamilton Ave., Grand Rapids, Mich...26

New York Foot Supporter—New York Coil Co., 338 Pearl St., New York City.42

Niswander Rim Remover—Niswander Mfg. Co., Quincy, Ill....42

Nixite Spark Plug—La French Power Spark Plug Co., 16-18 East First St., Columbus, O....29

Noble Safety Brake—Hughes Mfg. Co., 1806 South Michigan Ave, Chicago, Ill.31

No-Leak-O Piston Ring or Oil Sealing Ring—Automobile Accessories Co., 816 North Ave., Baltimore, Md....29

Norwesco "Twelve-Twenty" — Northwestern Chemical Co., Marietta, O....42

Pedex—American Car Accessories Co., 529 West 21st St., New York....25

Peugeot Type Cylinder Head—Laurel Motors Corp., Anderson, Ind....30

Pipe and Cigar Lighter—Metal Specialties Mfg. Co., 732 West Monroe St., Chicago, Ill....28

Pneumatic Jack—National Motor Supply Co., Cleveland, O....42

Portable Grease Cabinets and Pumps—Midway Mechanical Co., 1555 Selby Ave., St. Paul, Minn....32

Presto Electric Heater—Metal Specialties Mfg. Co., 338-352 Kedsie Ave., Chicago, Ill....34

Pyramid Brushes—National Carbon Co., Inc., Cleveland, O....43

Shurnuff Combination Manifold—Shurnuff Mfg. Co., St. Louis, Mo....42

Sioux Refacing Tool—Albertson & Co., Sioux City, Ia....29

Thermomat—Cawle Co., 506 City Trust Bldg., Indianapolis, Ind....38

Tool Cabinet—Hart & Hutchinson Co., New Britain, Conn....33

Top Bow Clamp—Motor Specialties Co., Waltham, Mass....32

Townsan Valve Adjuster and Silencer for Fords—Midway Mechanical Co., St. Paul, Minn....28

Transmission Lining—Advance Automobile Accessories Corp., 56 East Randolph St., Chicago, Ill....30

Tungar Rectifier—General Electric Co., Schenectady, N. Y....42

U. S. Safety Lock—U. S. Auto Lock Co., 3845 Wabash Ave., Chicago, Ill....26

Universal Clamp—Chas. D. Durkee & Co., 2 South St., New York City....40

Utility Sure Grip Pedals for Fords—Hill Pump Valve Co., Archer Ave. and Canal Sts., Chcago, Ill....35

Utility Universal Rim Wrench—Hill Pump Valve Co., Chicago, Ill....33

Victrolene—Victrolene Co., 29 Pearl St., Boston, Mass....42

Wegmann Decarbonizer—Manufacturers' Distributing Co., Inc., Dept. B, Fullerton Bldg., St. Louis, Mo....25

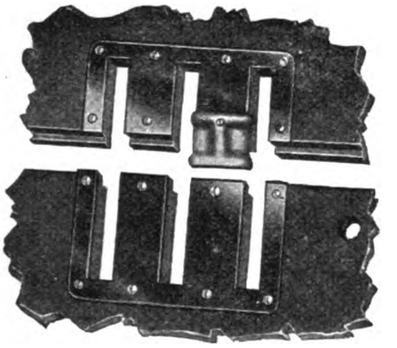
Wasco Garage Heating System—W. A. Schleit Mfg. Co., Inc., Syracuse, N. Y.26

Badger Cut Out. A new muffler cut out is now on the market, which is designed for use on the Chevrolet 4-90, a car that is not equipped with a cut out at the factory. This outfit is known as the "Badger" and is easily attached to the machine. It is only necessary to cut a V section from the exhaust pipe, directly in front of the muffler, and then clamp the cut out over the opening.

The manufacturers claim this is a quality proposition and that it is designed to give service and satisfaction. The valve is made of the best grade of iron, accurately machined and has a leak-proof feature, which is exclusive with this valve.

Manufactured by the Auto Parts Manufacturing Co., 313 Milwaukee St., Milwaukee, Wis. Price quoted at request.

Midway Floor Board Holder is a device for holding the floor boards in place, so that they cannot slip down nor sideways, thereby interfering with the operation of the foot pedals, thus preventing perhaps a serious accident. With the device attached the boards can be removed as easily as before and when in place the device prevents any displacement.



Manufactured by the Midway Mechanical Co., 1555 Selby Ave., St. Paul, Minn. Price, 25 cents each.

The Bulldog Luggage Carrier is the most efficient and satisfactory means of taking care of the luggage while motoring. It will hold grips or suit cases of any size firmly to the running board of the car, doing away with the crowding of foot room in the tonneau. When not in use the carrier can be unfastened and carried in a pocket of the car. It is made of the most substantial material throughout and will wear for many seasons.

Manufactured by the Bulldog Luggage Guard Co., 37 Elm St, Nashua, N. H. Price quoted at request.

The National Shock Absorber consists essentially of a casing through which two blades pass, the movement being controlled by a set of specially designed shoes and cam rollers. The result of this construction, the makers say, is an unique but scientifically correct mechanism, which permits perfect freedom of contraction of body springs, thereby preserving all their initial resiliency, but so retarding or modifying the rebound as to eliminate all shock and vibration.

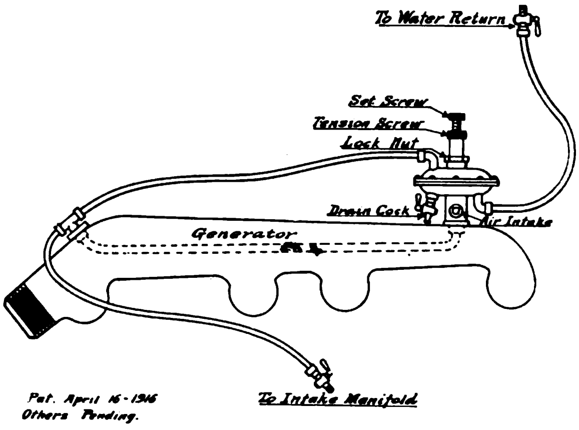
J. S. LANG ENGINEERING CO.
BOSTON MASS.
National
PAT. APPLIED FOR

Manufactured by J. S. Lang Engineering Co., 5 Park Square, Boston, Mass. Price quoted at request.

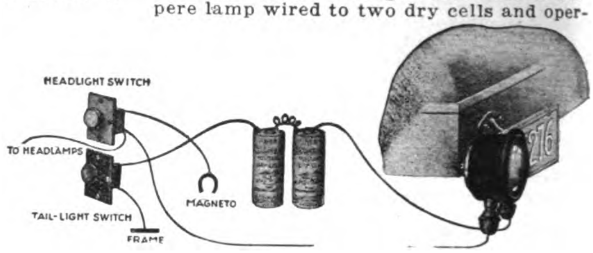
The Fogger is an automatic device for introducing live steam into the fuel of internal combustion engines as a means to remedy the carbon deposit evil. It consists of a housing containing two chambers separated by a diaphragm. The upper chamber, which is termed the vacuum chamber, is connected with the intake manifold; the lower is connected with the water circulating system, and, through the exhaust manifold, with the intake. It is also fitted wih drain cock and air intake connection. The vacuum, from the impulse of the engine acting on the diaphragm, opens and closes the needle valve by which the water is admitted. This operation allows water and air to be admitted from the chamber to the intake manifold, and pass through the heating pipe in the exhaust manifold, where the mixture is heated, producing steam.

Elimination of carbon deposit, saving of fuel through more perfect combustion and increased power are some of the advantages claimed for the device.

Manufactured by Motor Steam Generator Co., 417 Heed Bldg., Philadelphia, Pa. Price quoted at request.



The K-D Tail Lamp Assembly assures one of an efficient signal light whether the car is running or not. It has two bulbs, a high voltage 18-24 volt, two candle power, wired to the magneto and operated in conjunction with the headlight switch, thus insuring light when the car is running. A low voltage three-volt 42 ampere lamp wired to two dry cells and operated by a separated switch furnishes light when the engine is idle.



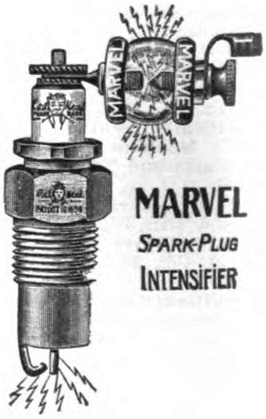
Manufactured by the K-D Lamp Co., Cincinnati, O. Price, $2.50.

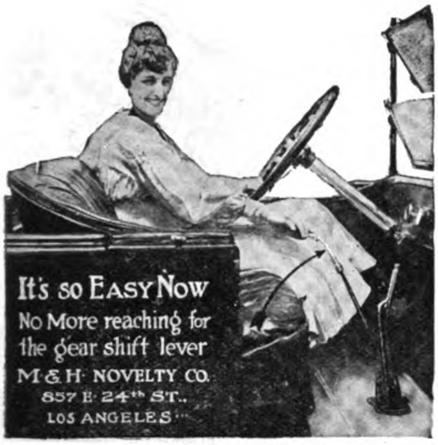
The Kahn Automatic Valve, which is standard equipment with Armstrong tubes, is similar in outside size and shape to other tube valves. It is the internal construction that differs. Beneath the knurled collar indicated by the arrow at the top of the illustration is a graduated dial marked with five figures, 50, 60, 70, 80 and 92 pounds. The knurled collar is turned until a certain projection on its face fits into the slot above the figure indicated the pressure desired in the tube. An air supply is connected with the valve by the usual method. When the pressure in the tire reaches the desired figure the valve automatically closes and the air from the pump passes through a by-pass to the outside with a loud, whistling noise, thus giving warning that the tire has the desired pressure.

Manufactured by the Armstrong Rubber Co., Inc., 118 Adams St., Newark, N. J. Price quoted at request.

Marvel Spark Intensifier. Our illustration shows a device by which, the makers say, the spark between the electrodes of the spark plug may be intensified. They further claim that a plug short circuited from accumulated soot, carbon or grease, or broken insulation, may be made to fire as perfectly as if it were new by the use of this device.

Manufactured by the Marvel Mfg. Co., 1020 Washington Blvd., Oak Park, Ill. Price, 75 cents each, or $3 per set of four.





Gear Shift Extension. The gear shift lever on practically all of the present day cars is not adjustable, therefore the person with short arms finds that considerable body movement is often necessary to change gears. To obviate this difficulty the Mellin's Adjustable Gear Shift Extension has been designed. This device is practically an extension lever, in three sections, that may be adjusted to suit practically any driver and by means of which the operator, with a single arm movement, can shift gears easily and without moving the body. The device is ornamental and neatly finished in nickel plate.

Manufactured by M. & H. Novelty Co., 857 East 24th St., Los Angeles, Cal. Price, $1.25 or $1.50, according to car.

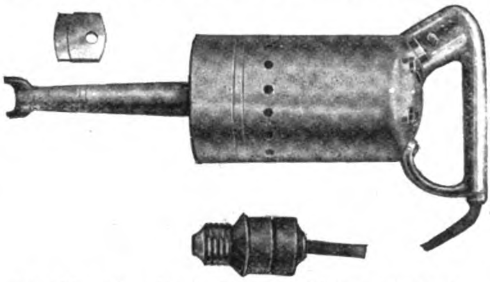
Pedex, a pedal extension device, makes it possible for two persons of different height to drive the same car with equal comfort. Pedex is designed to be attached to both the brake and clutch pedals, and the use of the permanent pedals is in no way impaired. Two adjustments are possible, so that the foot may be placed in a position of greatest comfort. In touring this article is a great help to the driver, making it possible for him to rest his feet by shifting to a new position.

Manufactured by American Car Accessories Co. 529 West 21st St., New York.

Hoyts' Rear Axle Truss, made specially for Ford cars and prevents the rear axle from sagging, to relieve undue strain on differential and keep the differential housing in condition.

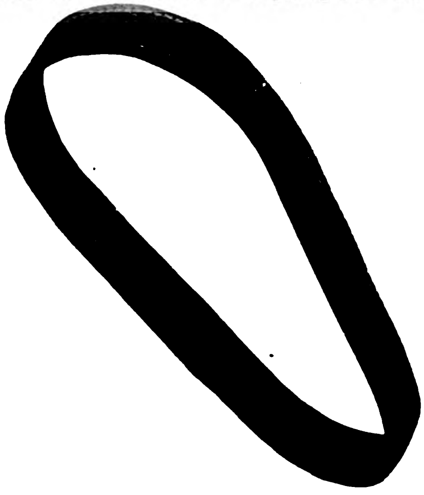
Manufactured by Hoyts Auto Supply Co., 370 Fairfield Ave., Bridgeport, Conn. Price, $1.50.

The B. F. S. Electric Valve Grinder is a compact portable motor driven device designed for grinding the valves of all internal combustion engines in a shorter length of time than is required by ordinary hand methods. The familiar oscillating motion employed in hand grinding is used by the grinder, which gives 800 to 900 oscillations per minute, a speed not obtainable in hand work. The gears are packed in grease, thus insuring perfect lubrication and noiseless operation. The switch placed conveniently in the handle is actuated by a slight pressure of the finger, starting or stopping the motor instantly. This machine weighs less than five pounds, which the makers claim is the right weight for ordinary valve grinding, and a light pressure is only necessary in cases where valves are badly pitted. Each grinder is fitted with an eight-foot cord and plug to fit the usual lamp socket and standard machines are made for 110 to 130 volt alternating or direct current. These are furnished in higher voltage if specified. Bits for standard slotted or pin hole valves complete the outfit.



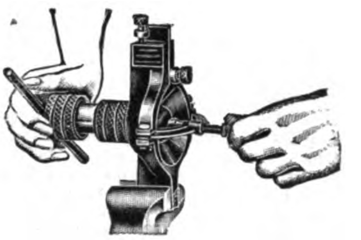
Manufactured by the B. F. S. Manufacturing Co., 54 Hermon St., Worcester, Mass.

The Cork Insert Ford Fan Belt is based upon the same idea that underlies the well known cork insert transmission linings for Ford cars. In this belt circular pieces of cork are inserted into a high grade tanned and stretched strip of specially water proofed oak leather. The cork inserts are backed up by a heavy fabric to prevent their becoming loose or slipping out. This construction is said to eliminate the slipping, which might cut down the efficiency of the belt.



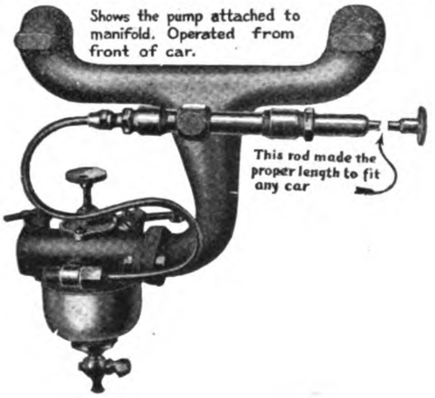
Manufactured by Advance Automobile Accessories Corporation, Dept. E 3-1, 56 East Randolph St., Chicago, Ill. Price for 1917 Ford car model belt, $1. For other models, 85 cents.

The G. B. Valve Tool is a miniature hand lathe designed especially for dressing valves. It is made of drop-forged steel, case hardened and ground until it is absolutely true. The knife can be removed and resharpened easily and is so constructed that it will dress valves of any size or material at a perfect angle of 45 degrees. The tool is so constructed that the valve must necessarily be on center when it is dressed. The use of this tool, the makers claim, will not only remove all carbon deposit, but will dress off all imperfections on the valve or seat, such as ridges, grooves, pits, etc.



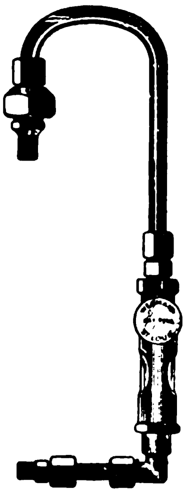
Manufactured by the G. B. G. and Mfg. Co., 299-303 Franklin St., Hempstead, N. Y. Price quoted at request.

Maltby Spray Primer. A compact little device made of brass with which the manufacturers claim a gasoline engine may be started in "zero" weather is known as the Maltby Spray Primer. The primer may be attached to the manifold of any car, installed either through the radiator in hand cranked cars or through the dash in cars equipped with engine starters. The action of the primer is: A charge of gasoline is drawn into the primer by the pump action and injected into the intake manifold in the form of an atomized vapor.


Shows the pump attached to manifold. Operated from front of car.
This rod made the proper length to fit any car

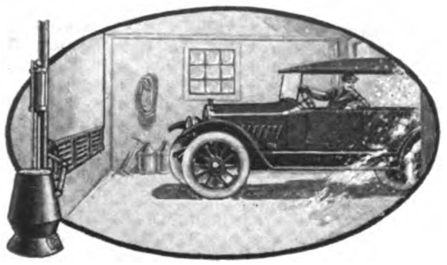
Manufactured by Maltby Auto Specialty Co., Battle Creek, Mich. Retail price, $7.50. Special discount to dealers.

The Wegmann Decarbonizer is easily installed. It attaches to the intake manifold and to the water supply pipe or jacket. The fine spray of live steam it injects into the combustion chamber acts as a carbon remover and the manufacturers claim its use gives from 10 to 20 per cent. more power. It is regulated by the speed of the engine and once attached and adjusted is automatic in action.



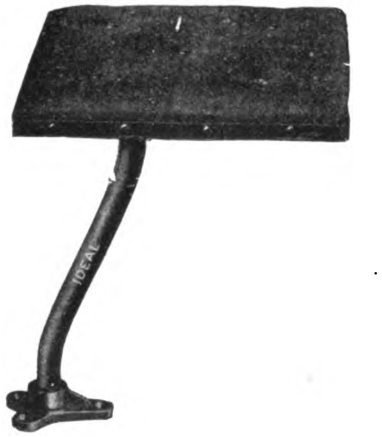
Distributed by the Manufacturers' Distributing Co., Inc., Dept. B, Fullerton Bldg., St. Louis, Mo. Price, $5.

The Wasco Garage Heating System is a coal stove which is a well designed small boiler, for it is water jacketed from the fire box to the top. This water jacket is fitted with two connections to the radiating system and with an expansion tank which is designed to regulate the temperature of the boiler. Inside the tank is fitted an air tight float, which is connected through regulator rods with a griddle damper in the chimney. As the water in the radiator reaches a predetermined temperature its expansion in volume raises the float in the expansion tank and closes the damper. As the water is cooled and contracts the lowering of the float opens the griddle damper and the increased draught causes the fire in the stove to burn brighter. The radiating system is of the unit form, each radiator measuring 13 inches by seven feet three inches. It is designed for heating one automobile space, more units being added for larger installations. It is said that the system consumes very little coal, as for a one car system, one skuttle of coal daily will suffice. Because of the automatic regulating device temperature the system requires but very little attention. The installation is simple, as all joints are made up to specifications at the factory and fitted, nothing is required but assembling in the garage.



Manufactured by W. A. Schleit Mfg. Co., Inc., Syracuse, N. Y. Price quoted at request.

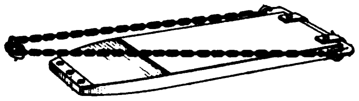
The Ideal Junior Seat will fit any make of automobile now on the market. It is substantially made and finished and when in place becomes a part of the automobile. A bracket is fastened to the floor board with three bolts and always remains on the car. This bracket has a tapered hole for receiving the upright seat support, the end of which is also tapered to fit bracket. Similar arrangement is made on the bracket fastened to underside of seat. This feature makes it a simple matter to detach the seat from the car, detach upright support from seat and store away in a very small space.



The seat can be adjusted from side to side or front to back for a distance of six inches when desirable, but when in place the tapered sockets do not permit seat to turn or swing around.

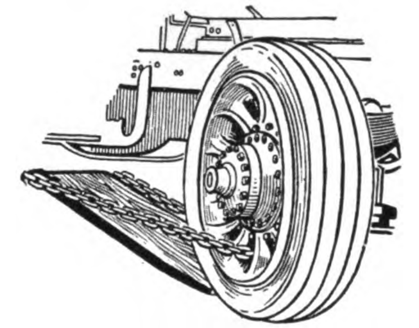
Manufactured by Ideal Brass Works, Indianapolis, Ind. Price, $2.50 each, complete with bolts.

Moore's Mud Hole Skid. A patented device, known as Moore's Mud Hole Skid, is, as the name implies, intended for use with any power vehicle, utilizing the driving effort to extricate it wherever traction is not normally obtainable. Statement is made that it is an exceptional utility with any truck, because it can be carried and be always available, and that it will economize time, labor, fuel, tires and perhaps repairs. The accompanying illustration shows the device and manner of using it. With a pair of the Moore skids any emergency can be met.



The skid is a section of plank with one end tapered so it may be forced into mud or sand, that is strengthened by a binding band of heavy metal. At the other end of the plank, retained by two stout clamps, is an iron bar, the ends of which are turned at right angles to the main section and carry rings. One end of a chain more than twice the length of the skid is secured to one of these rings and at the other end of the chain is a hook.

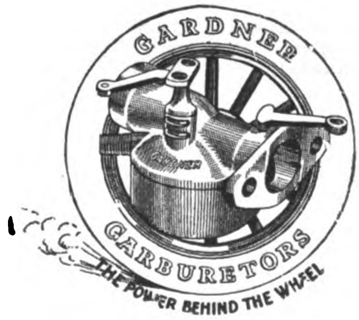
When used the tapered end of the skid is forced under the tire of a driving wheel that has no traction. The chain is carried between spokes back of the axle center so there will be draft upon it as the wheel is turned. The other end of the chain is hooked to the ring at the broad end of the skid, and the slack taken up. When the engine is started the turning of the wheel will wind the chain on the brake drum and the wheel will roll along the skid. After the wheel is well on the skid and traction is positive the chain is cast off.

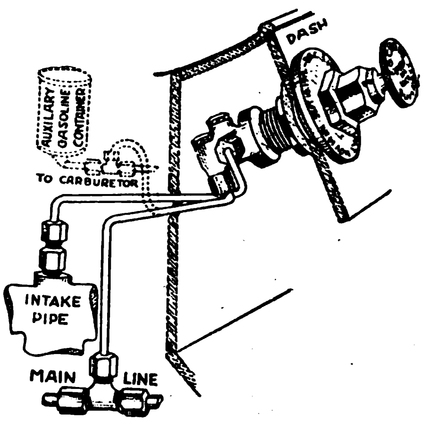


Manufactured by Langley & Schultze, Louisville, Ky. Price quoted at request.

The Gardner Thermostat Carburetor is automatically adjusted to either heat or cold. The makers claim it to scientifically and automatically maintain the correct proportion of air and fuel to suit the varying speed or load of the motor. It is free from moving parts and thermostatically regulated, giving more gasoline to start and automatically cutting off the gas as the engine warms up. This thermostat is submerged in the gasoline and its action is controlled by its temperature and varies as the changes of temperature require.

Manufactured by the Gardner Carburetor and Brass Works, Summit Ave. and Wabash R. R., Detroit, Mich. Prices quoted at request.

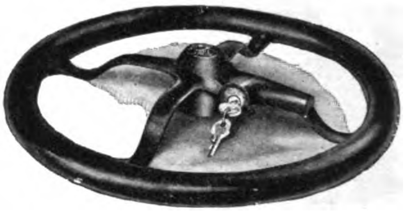

GARDNER
CARBURETORS
THE POWER BEHIND THE WHEEL



The New Crone Primer is designed to facilitate the starting of the engine and save the starter batteries. It sprays a fine cloud of combustible gasoline at a point where the first spark starts the engine, only one or two operations of the primer starter being necessary. When not in use the valve is seated tightly and locked in position by turning the handle either to the right or left. Attachment is by boring a ¾ inch hole through the instrument board and fastening by a lock nut, and tapping manifold for a ⅛ inch gas pipe tap. The plunger is the full size of the barrel, which obviates the use of washers. The primer has no parts to wear out.

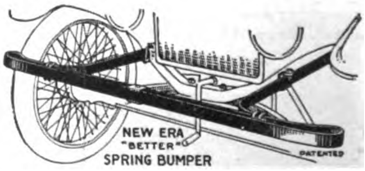
Manufactured by F. G. Crone, 334 Genesee St., Buffalo, N. Y. List price with fittings, $5.

The U. S. Safety Lock gives one the modern method for locking the Ford car to prevent it from being stolen. It is new in principle and the Yale tumbler lock of the latest design is used, which absolutely does away with key trouble. By removing the Yale key the car is locked and the steering wheel spins free, no lifting or pulling is necessary.



Manufactured by the U. S. Auto Lock Co., 3845 Wabash Ave., Chicago, Ill. Price, $7.50.

New Era "Better" Spring Bumpers are light, strong and neat. They are made of 1¾x5/16 inch spring steel, and the construction is such that bumpers made of this size have greater resisting power and absorbing qualities than bumpers of other construction made of steel wider and thicker. The construction is double front bar full length with center tie, giving maximum strength from end to end. When an angle blow is received the vibration is distributed and absorbed throughout the entire length of the bumper and attaching arms.



Manufactured by the New Era Spring and Specialty Co., 1177 Hamilton Ave., Grand Rapids, Mich. Price quoted at request.

GASKETTE ROLL
2.50

Garco Gaskette Roll was devised for the countless small repair jobs where a cut piece of sheet packing is needed. It is made of specially selected long fiber asbestos with a network of strong fine wire interwoven in it, giving it the greatest possible strength and wear resisting ability. It is packed in a durable, dust proof carton cut 10 inches wide by 40 inches long. It is also furnished in full rolls of 250 pounds and half rolls of 125 pounds.

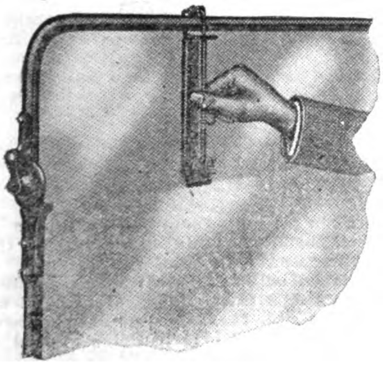
Manufactured by the General Asbestos and Rubber Co., Charlestown, S. C. Price quoted at request.

The Dyer Towing Device is a simple arrangement for fastening to the front axle of a Ford car and making possible the towing of the car by another without the aid of a second driver. The device is designed for attachment to the axle and is fitted with a clamp, which is fastened to the steering spindle connecting rod. The other end of the device is fastened to the towing car. When a corner is turned the rear car is automatically steered by the device.

Manufactured by the G. H. Dyer Co., Cambridge, Mass. Price quoted at request.

The Clean-All Windshield Cleaner by its extreme neatness adds to the appearance of any automobile. This cleaner cannot rust or rattle. The windshield can be turned down with the cleaner attached and it is so designed that it cannot break the glass. It is always out of the driver's way, but never out of his reach and is constructed of the best material obtainable for hard, practical use.

Manufactured by the Clean-All Windshield Corporation, 257 Washington St., Buffalo, N. Y. Price, $1.50.

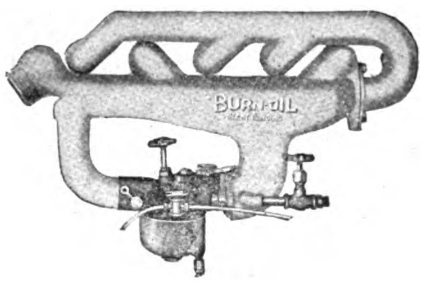


H. & H. Steel Locker. An employer has a certain responsibility toward his employees and is morally bound to furnish them with some form of locker for their coats, hats, etc. The H. & H. Steel Locker solves the problem of cost as well as space. The locker illustrated is called type B-C, and adds to the attractiveness of coat rooms, as well as provides for spacious, sanitary and safe storage accommodations.

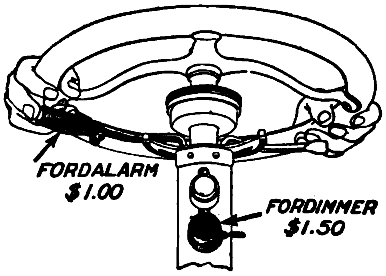
The door frames are made from one solid steel of No. 14 gauge, cold rolled steel, flanged one inch on both outside edges and formed at the bottom to provide six-inch legs. The back is made of one piece, flanged one inch on both edges, extending from the top to the floor. The sides are bolted to the front and back. The doors are made of No. 14 gauge steel, reinforced with steel channel construction and hung on the frame with three solid two-inch fast pin butts. They are louvered with six openings at top and bottom to admit air for circulation, and if required may be cut with louvers over the whole area. The design of the lockers permits the assembling of practically any number side by side, forming an unbroken surface. Standard sizes ranging from one foot square and five feet high to two feet square by six feet high may be obtained.

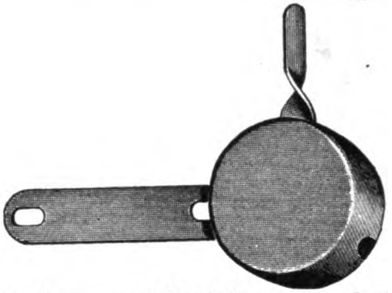
Manufactured by the Hart & Hutchinson Co., 654 Oliver Bldg., Boston, Mass.

Burn Oil Device. Every car owner should be interested in the problem of conservation of fuel and reduction of operating expense. To a certain extent the use of kerosene instead of gasoline as a fuel is the solution of one of the main difficulties. The Burn Oil Device is designed for attachment to the Ford car carburetor. When this device is used the engine is started on gasoline, then the three-way valve turned, kerosene admitted and the engine run on kerosene. In addition to this, water is admitted to the manifold through a needle adjusting valve. The whole device is simple and easily attached, the makers claiming a 50 per cent. saving on the cost of fuel.



Manufactured by Burn Oil Device Co., Inc., 120 N. Jefferson Ave., Peoria, Ill. Price complete, $30.





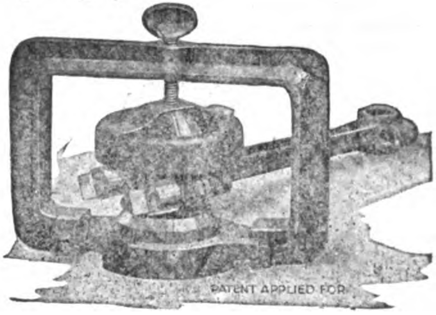
Fordimmer and Fordalarm. The first is called the Fordimmer. By the use of this device the headlights may be dimmed at will by the driver, thus preventing headlight glare, which in many cities is prohibited. It is also a safety device in that the lights are kept from burning out at high engine speed. It is claimed that the voltage is regulated and that the ignition system is not affected by its use.

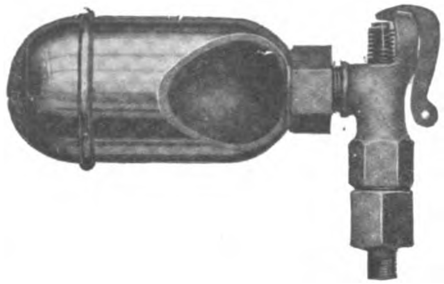
Many an accident has been caused by the dividing of the attention of the driver between the horn button and the wheel at a critical moment. At such a time both hands should be kept on the steering wheel. This situation is made possible by the use of the Fordalarm, a button mounted just beneath the steering wheel, on the end of the gasoline control lever. In emergencies the driver's hand is usually on this lever, and the second finger of the hand is always in position to press the alarm button if necessary and sound the horn.

Manufactured by Detroit Novelty Mfg. Co., Marquette Bldg., Detroit, Mich. Price of Fordimmer, $1.50; Fordalarm, $1.

The Babbitter for Ford Cars is especially designed to re-babbitt Ford connecting rods, quickly, economically, accurately and in a serviceable manner. Ford parts are standardized, so that the mandrel of this tool could be made so that it would cast the bearing to the thousandths part of an inch, ready to fit the crankshaft for the usual "burning in" process. After the metal is cast and hardened the top of the mandrel is struck a blow with a hammer to disassemble the parts and a few strokes of a rough file is all that is necessary to finish the rod for the engine. This device will babbitt Ford connecting rods at the rate of three to four an hour and at a saving of $1.75 to $2.50 on a set of four connecting rods.

Manufactured by the Burlington Machine Works, Burlington, Ia. Price, $15. Shipping weight, eight pounds.





Buell Explosion Whistle. A distinctive and new warning signal is introduced under the trade name of Buell Explosion Whistle. As the name indicates, this device is operated by the pressure caused by the explosion in a gasoline engine. Mechanically it consists of a fitting which may be screwed into the engine in place of the priming cup and in which is fitted a small poppet valve of ½ inch in diameter. The valve is opened by a control cord which may be fastened to the steering column, allowing a small amount of gas to pass through it and operate the whistle. The makers sell the device under a 10 years' guarantee and claim that under ordinary conditions it will last longer than the car itself.

The warning is said to be distinctive enough to command instant attention even above all other traffic noises.

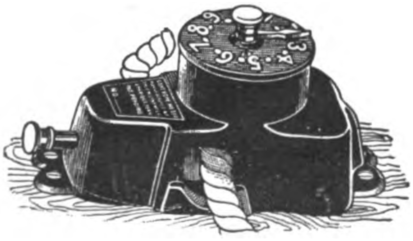
Manufactured by Buell Co., 1610 So. Michigan Ave., Chicago, Ill. Price for single tone with valve, $4.25; chime model with valve, $6. Special plug without whistle for Ford car attachment, $1.25. Whistle extra as above.

Adjustable Holder. The illustration shows a handy and easily adjusted canteen or suit case holder, which may be attached to the running board of any car. This device is adjustable, so that in it may be carried practically any object eight inches wide and less than the length of the running board. Adjustment is secured by wing nuts, which are located on the top of the device. With every holder, which consists of two parts, is furnished a holding strap.

Manufactured by Leslie E. Moore, 1042 S. Olive St., Los Angeles, Cal. Price, $2.25 per set.

The Gant Meter. One of the small and often neglected wastes in a supply house is due to the fact that not enough care is exercised in measuring ignition cables and wiring. Inches soon add up to feet and mistakes mean money where secondary cable is concerned. The Gant Meter is a device which is said to accurately measure any size of cable, rope or wire drawn through it from one-quarter inch to one inch in diameter. This device is strongly and compactly constructed, finished in green, with large gilt numerals.

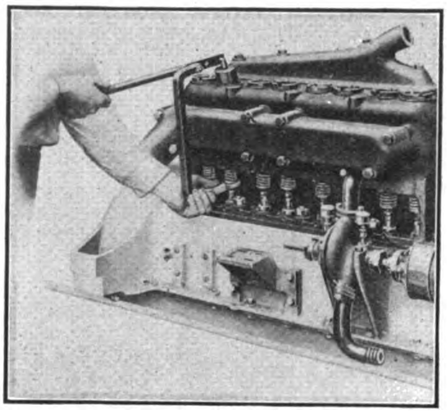
Manufactured by the E. M. Gant Mfg. Co., Inc., Ethridge, Tenn. Price, $5.



The Buda Valve Lifter is designed especially for the Buda engine. If an engine is to deliver its full capacity on a minimum of fuel, careful attention must be given to the matter of keeping the valves in proper shape.

The removal of valves for inspection or grinding is a difficult task with the tools usually furnished as part of the equipment of trucks and tractors. Added to this there is the liability of doing serious injury to the valve stems or push rods.

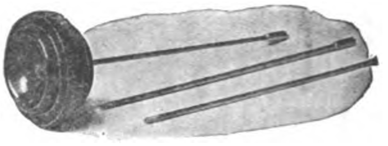
To simplify the removing of valves the Buda company has placed on the market a valve lifter, which is shown in use in the accompanying illustration. This tool can be used on all models of Buda engines except the RU. By substituting a smaller block to fit the porthole openings, the tool can also be used on that model.



Manufactured by the Buda Co., Harvey, Ill. Price quoted at request.

Martin Tire Cover. When the traveling motorist is forced to replace a worn out shoe with the "spare" which he has been carrying upon the running board, he is very apt to feel that his troubles for the time being are over. If he has been far sighted enough to protect this "spare" shoe from the sun, rain, mud and dust, then he has a right to expect full service from it; if not, then he alone is to blame. The Martin Tire Cover, illustrated, is made of the best enameled drill, water proofed and said to offer perfect protection to the shoe. It is designed to fit the tire and offer not only protection, but present an attractive appearance. Tire covers are manufactured by this firm for use on "spares" that are carried on demountable rims. Specifications furnished upon request.

Manufactured by the Martin Mfg. Co., Lancaster, O. Price for Ford Tire Covers, $1.75.



American Sonoscope. A cheap, serviceable and efficient little device for the repair man's use in locating the knocks in an engine is sold under the name of the American Sonoscope. This instrument consists of a neat receiver with rubberoid casing, which has a cap to fit the ear, and of a sectional test rod which can be taken apart for convenience in packing. All the metal parts are nickel plated and it is furnished packed in a neat box.

The makers claim the Sonoscope is so sensitive to sound that if the free end of the test rod is placed against the outside of a person's watch pocket the ticking of the watch will be as plainly heard in the instrument as if the watch itself were held against the ear.

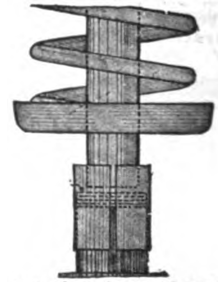
Manufactured by the American Electric Co., State and 64th Sts., Chicago, Ill. Price complete with carrying case, $1.50.

Pipe and Cigar Lighter. There is nothing more annoying to the motorist than to be obliged to slow up his car or pull up to the curb in order to light his pipe or cigar. The device shown in the illustration herewith is designed especially for lighting the pipe, or can be used equally well for lighting a cigar or cigarette. When the motorist wishes to light his pipe or cigar he simply reaches for the lighter, takes it from the holder, presses the button and a light is immediately available, wind or weather making no difference to the action. The pipe lighter is equipped with 10 feet of cord and designed for connection with the storage battery. The cord is automatically reeled up when not in use.

HOLDER
"PRESTO" AUTOMATIC CORD WINDER

Manufactured by the Metal Specialties Mfg. Co., 732 West Monroe St., Chicago, Ill. Price complete with winder, $4. Without winder, $1.50.

The Townsan Valve Adjuster and Silencer for Fords eliminates the click of the valves and takes up the wear. It is adjustable from time to time and can be placed on every valve, regardless of play, for it takes up play from the thickness of one disc, .006 inch and upward, to the amount necessary to quiet the valve.



Manufactured by the Midway Mechanical Co., St. Paul, Minn. Long sleeve of all models previous to 1912, and short sleeve for 1912 model and later. Price quoted at request.

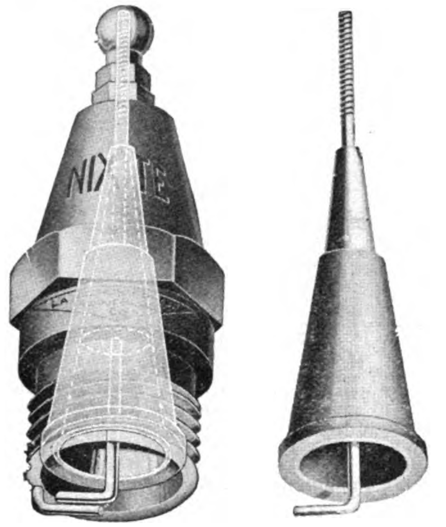
Ekern's Portable Work Bench and Engine Stand is especially designed for use in Ford repair shops, although there are various uses to which it can be put in general repair shops. The stand is mounted on three four-inch diameter wheels. The rear castor wheel is constructed so that by pulling a plunger pin this castor will swing up off the floor and the stand will rest solidly upon its legs. It has two large trays 22x24 inches, where the workman can place his tools or engine parts. A Ford engine assembly can be attached to the stand by the two cap screws which hold the water inlet connection on the engine. The part attached to the engine will revolve in the clamp on the stand, adjusting the engine to the position most convenient to be worked upon. The bench is also equipped with a vise, which has a three-inch jaw with a four-inch opening. This vise will handle any work required in overhauling the Ford engine or other work of a similar nature.

Manufactured by the Ekern Bros. Manufacturing Co., Flandreau, S. D., and distributed by H. G. Paro, 1410-14 S. Michigan Blvd., Chicago, Ill. Price quoted at request.

Martin Door Pocket. Among accessories designed for Ford and Chevrolet cars that are useful as well as ornamental, is the Martin door pocket. This pocket is made of high grade leather cloth and is guaranteed not to crack or peel. Such a pocket offers space for carrying route books, pamphlets or small tools, and are very convenient, utilizing unused space to the best advantage.

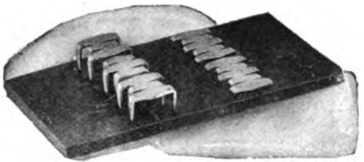
Manufactured by Martin Manufacturing Co., Lancaster, O. Price, 75 cents.

Nixite Spark Plug. A plug which is claimed to be entirely different from anything now on the market is called the Nixite Spark Plug. The electrodes, as will be noted in the illustration, are so designed as to permit a broad, thick spark, which is claimed to result in both quick and perfect combustion. The insulating material is a new product, called Nixite, and is mounted inside a special steel shell, which offers protection from breakage. The exterior or outside part of the plug is similar in appearance to an ordinary plug, but the material at the top is Bakelite. This material offers protection against breakage from outside blows. The manufacturers cover the plug with a "life" guarantee and state that any part of the plug will be replaced free of charge if returned to the factory in the box, together with 10 two-cent stamps, to cover cost of packing and transportation.



Manufactured by La French Power Spark Plug Co., 16-18 East First St., Columbus, O. Price, $1 each.

Bristol's Steel Belt Lacing. An important factor in power transmission is belt condition. Belts that are not flexible or not properly joined at the ends absorb much power, thereby increasing the cost of overhead. The Bristol belt fasteners are made in many sizes and designed for practically any weight or size of belt. They are made from especially tested cold rolled steel by a patented cutting method which eliminates waste, thus bringing down the cost.

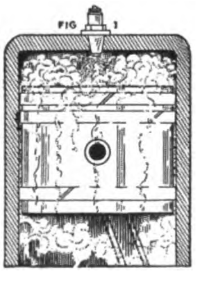


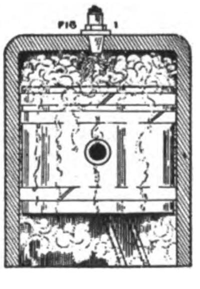
The application to the belt is easy, and when applied the joint resembles, in general lacing design, that of a raw hide laced belt.

Manufactured by the Bristol Co., Waterbury, Conn. Price quoted at request.

The No-Leak-O Piston Ring or Oil Sealing Ring is a specially designed piston ring that has a deep groove cut around the face of the ring with a scraping edge, in combination with a lap joint, which is said to form a perfect seal of oil; that is to say, with the groove full of oil around the ring, the gas cannot escape, the refuse of poor oil cannot work into the crank case, nor can the oil from the crank case work into the combustion chamber.

Automobile Accessories Co., 816 W. North Ave., Baltimore, Md. Price quoted at request.

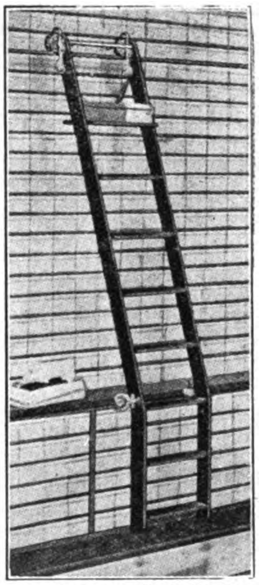




Milbradt Step Ladders. In a garage, supply station, accessory store or stock room it often happens that many of the articles frequently used are packed high upon the shelves or in drawers, which are above reaching distance. A rolling step ladder such as is shown in the illustration is an extremely handy part of the equipment and fully as important as the shelves themselves, if the saving of time is any object. The Milbradt Rolling Step Ladders are made in many styles and to fit practically any shelf or drawer arrangement. They are made to order of hard wood lumber (usually oak), nicely finished with suitable fixtures at the top and to run on either steel or wood track.

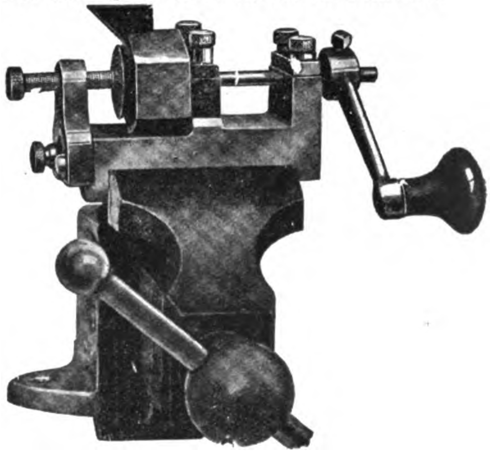
They may be had to roll on the floor or against the side of the shelves, and it is said that a slight push will propel a ladder the length of an ordinary store, even with the operator on it.

Two styles of track are used, wood upon which rolls iron wheels, or steel track upon which rolls paper filled wheels. In either case the fittings are so arranged that the wheels cannot jump the track.

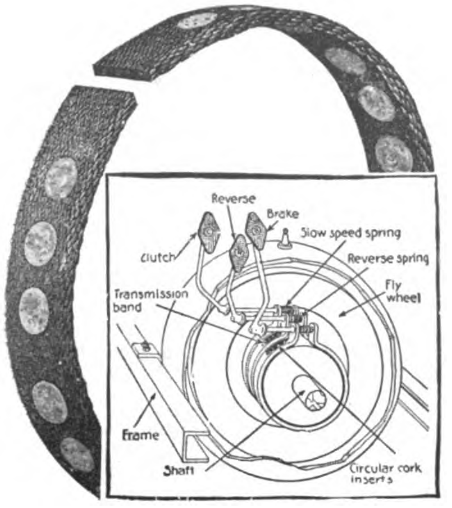


Manufactured by Milbradt Manufacturing Co., St. Louis, Mo. Price quoted at request.

The Sioux Refacing Tool is designed for refacing valves and will reface any valve of standard type, that is, with 45 degree face and up to three inches in diameter. For valves of 30 or 60 degree faces extra cutters are obtainable. The cutters are made of tool steel, hardened, tempered and cut to the correct angle. The manufacturer claims that no experience is necessary for operating the tool and that finished jobs are obtainable in a surprisingly short time, even by inexperienced men.



Manufactured by Albertson & Co., Sioux City, Ia. Price, $6 with one 45 degree cutter; extra cutters, 75 cents each.

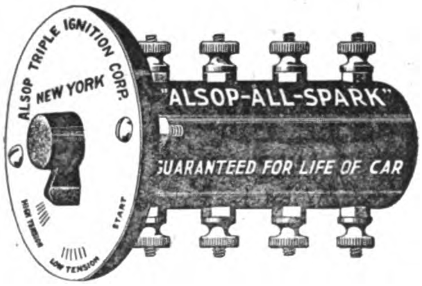


Transmission Lining. There are few things as uncomfortable as a grabbing clutch, or a harshly engaging brake band. The Ford low speed clutch, reverse and service brake action is dependent upon contracting bands, which must be lined with some sort of fabric to make them efficient. For this purpose the Advance cork insert transmission lining has been designed. It is made up of a tough fabric into which are inserted pieces of cork. The manufacturers claim that when a car is fitted wth this type of lining the clutch, as well as the service brake, engages smoothly and with a velvet action, due to the soft frictional bearing of the cork inserts.

Manufactured by Advance Automobile Accessories Corporation, 56 East Randolph St., Chicago, Ill. Price quoted at request.

The "Alsop-All-Spark" is claimed by the makers to make possible the use of old dead carbon choked spark plugs with as good results as can be gotten from new ones without this device. It goes much further than the saving of spark plugs, as the reinforced spark is a more positive exploder of the gasoline. When it is considered that there are more than 5400 sparks per minute in a six-cylinder engine, which runs 3600 revolutions per minute and only a certain per cent. explode the gas, it can be readily seen that a device which gives such a powerful spark will penetrate through heavy oil and spark dead carbonized plugs, will certainly cause a great deal more explosions per spark delivered.

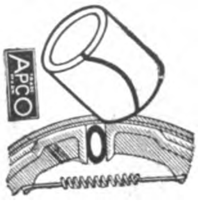
With this device it is seldom ever necessary to change spark plugs, as a slight turn of dial on the dash will raise the voltage to such an extent that it will overcome any misfires, no matter in what condition the plug may become.



The device screws upon the dashboard and is controlled by a dial inside the car. It is connected between the spark plugs and distributor and will not interfere with any present equipment. The makers claim it to work equally well upon any ignition system. Easily attached in a few minutes.

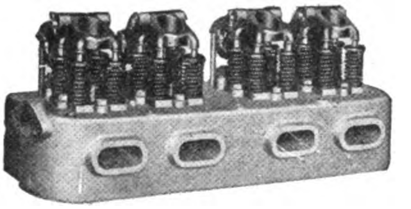
Manufactured by the Alsop Triple Ignition Corporation, 1765 Broadway, New York City, N. Y. Price for all four cylinder cars, trucks and tractors, $6.

The Apco Brake Shoe Adjuster fills a long needed want for the Ford car. Without these the Ford brake shoes when half worn are useless and of course must be removed. With this adjuster, which consists of specially hardened steel thimbles, which are driven over the brake shoe cams, the brake shoes may be totally worn. After their removal the adjusters may be used over again, as they do not wear out. The installation is a matter of a few minutes using a hammer. Each set is packed in a box weighing two ounces.



Manufactured by the Apco Manufacturing Co., Providence, R. I. Price quoted at request.

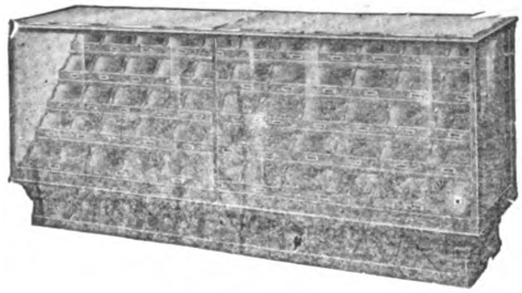
The Peugeot Type Cylinder Head should be an attractive proposition for the owner who is remodeling his Ford car for speed work. This cylinder head is made of a special grade of semi-steel nickel plated and water jacketed, and fitted with 16 overhead valves, which open directly into the explosion chamber and are operated through push rods, which extend to the regular Ford tappets. The design is such that the spark plugs are located in the center of the combustion chamber. All holes in the cylinder and manifold are Ford standard, therefore no drilling or tapping is necessary. The application of this head is very simple and the makers claim an increase of approximately 100 per cent. in horsepower and much gasoline efficiency.

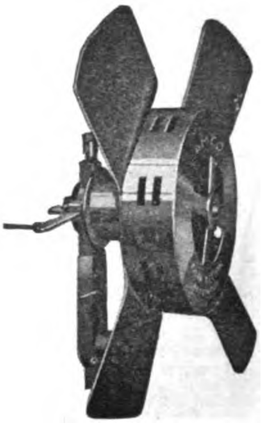


Manufactured by Laurel Motors Corporation, Anderson, Ind. Price, $95.

Accessory Display Case. The development of the accessory business in the past few years has brought about the manufacture of a show case designed especially for the attractive display of automobile accessories. The accessory display case not only makes it easy for the motorist to select what he desires, but, in addition, the attractive arrangement and display of other accessories creates extra sales. This case is built in standard lengths from five to 10 feet, with from 35 to 70 drawers, depending upon the length of the case. There are five tiers of drawers, which vary in size, and each drawer is fitted with a bronze pull and card holder, so that the description and price of each article can be read easily.

Manufactured by the Detroit Show Case Co., 459 Fort St., W. Detroit, Mich. Price quoted at request.





The Fanhorn. A unique, new device of warning signal has just been put on the market which is said to be different from every other warning. The Fanhorn, as this distinctive type of signal is known, is designed to emit tones whose volume and penetration is in direct proportion to car speed. This result is achieved by the simple expedient of making the Fanhorn a part of the engine fan, in fact, the entire device is merely substituted for the present fan on any car, with no other alterations.

The tone of the Fanhorn is best described as a cross between a whistle and a whoop, both pleasing as well as commanding, and the pitch changes with the engine or car speed. The position of this new type of signal at the extreme front of the engine compartments avoids obstructions to the sound.

The horn is worked merely by pressure upon a button, which admits air into the apertures on the fanhorn drum, setting in motion an internal, revolving slotted disc, which causes the tone.

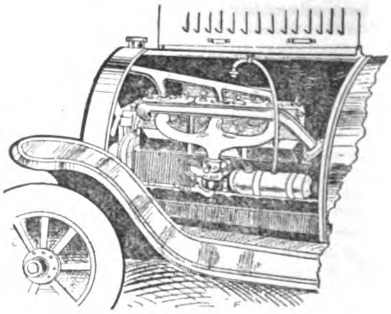
The manufacturers guarantee the material and workmanship of the new signal for a full year, and stand back of the dealer on a broad money back if not satisfied policy.

Manufactured by the Art Metal Manufacturing Co., Cleveland, O. Price quoted at request.

Fire Extinguisher. An automatic fire extinguisher is shown in an accompanying illustration. It consists of a smaller copper tank containing a power plant and extinguishing fluid, a fusible release plug, nozzle attachment and brass fittings so arranged that contents are under perfect automatic control.

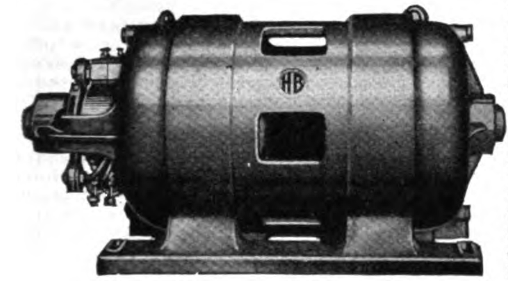
At first sign of fire it goes automatically into action, driving a liquid with great force through a spray nozzle so directed that it floods engine and equipment with a chemical said to be harmless to metal or fabric, but dealing an instantaneous death blow to fire, smothering it beneath the closed hood and eliminating all personal danger and preserving the appearance of the car. The recharging of the power plant once a year or refilling after use is all the attention required.

Manufactured by Luserne Lumber Co., Luserne, Pa. Price quoted at request.



The Hobart Battery Charger meets the requirements of the garage man who intends to do an extensive business in the battery charging line, or for the garage which makes a specialty of this line of work.

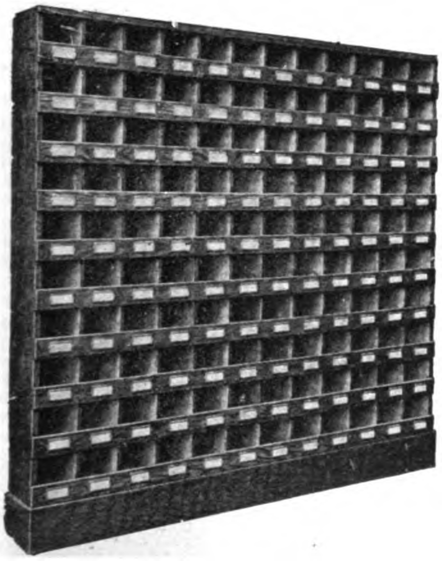
The current generating outfit consists of a standard alternating current motor with generator in the same housing, the shafts of motor and generator armatures being integral. By means of the device alternating current is converted into direct current for charging storage batteries.



For charging panels are provided, each fitted with snap switch, rheostat, fuse, ammeter and binding posts, for connection with four distinct battery charging lines. By means of this equipment different voltage batteries can be charged in the same line, or batteries requiring different charging rates taken care of at the same time.

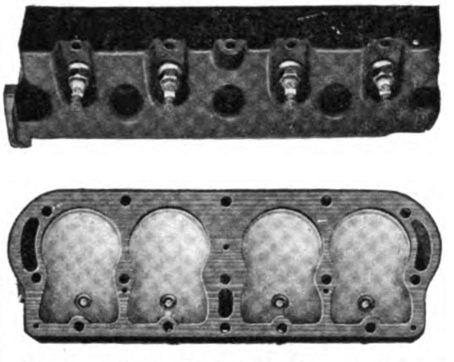
Manufactured by Hobart Brothers Co., Troy, O. Price quoted at request.

The Accessory and Parts Stock Bin illustrated herewith supplies a convenient and economical equipment for handling an extensive amount of stock and parts, such as valves, springs, bolts, piston rings, bearings, cones, grease cups, etc. It is attractive in appearance and makes a more practical and flexible equipment than the average built in set of shelves.



The bin contains 120 compartments, 6x8x10 inches, a size large enough to take care of practically all of the ordinary accessories and small repair parts. The front partition and ends of the bin are genuine oak, with a light grained finish. The back is of sheet steel. Each compartment bears a metal card index holder.

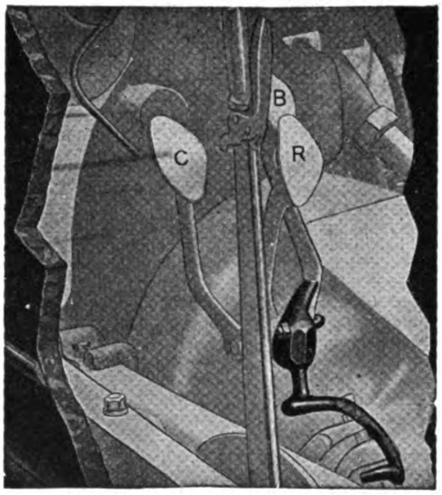
Manufactured by Hobart Bros. Co., Troy, O. Price, $25.50.



Hudson Type Cylinder Head. A new cylinder head for Ford cars has just been put on the market which should be an interesting fitting for Ford owners desiring to secure more speed and better combustion. This cylinder head, which may be interchanged with the standard Ford head in but a short time, is built of cast iron and constructed with an extra large water jacket holding approximately half a gallon more water than the standard head. The water jacket completely surrounds the spark plugs, thereby keeping them cool at all times. It is said that better water circulation is secured because of the increased water passage size. The largest part of the combustion chamber is directly over the valves while the inside is perfectly smooth.

It is said that with this new cylinder head there is a noticeable increase of power, and that there is a saving of fuel.

Manufactured by Green Engineering Co., 34 S. St. Clair St., Dayton, O. Price quoted at request.



Noble Safety Brake. Until a driver has been on the verge of an accident he does not know just how quickly his brain can act and how soon he can get control of his car. As a general rule an excited driver will grab for his emergency brake and if the brake is efficient he may avert an accident.

For the purpose of adding to the efficiency of the emergency brake of the Ford car, the Noble Safety Brake device has been manufactured. This device is so arranged that upon application of the emergency the service brake is automatically applied. The driver's attention need not be divided between the service and emergency brakes, but concentrated on the emergency lever at all times.

The manufacturers of this device claim that the braking action where equally distributed between the wheels and transmission is smooth and easy and that maximum braking efficiency is attained.

Manufactured by Hughes Manufacturing Co., 1806 South Michigan Ave., Chicago, Ill. Price, $2.25.

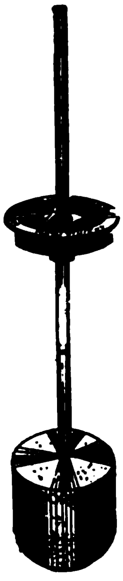
The Jefferson Electric Manufacturing Co., Chicago, Ill., recently placed on the market a line of battery replacement coils and fittings which are sufficiently flexible to displace any type of coil on battery equipped cars. The extreme flexibility of Jefferson coils is obtained from several features, which include the fittings, adjustable caps, terminals and mounting arrangements.

With a small stock of Jefferson coils any service station, garage or repair shop will be prepared for any emergency. Heretofore it has been necessary to lay up a car for several days while a new coil was being obtained. Now, however, any car can be placed in service within a few minutes. It is only necessary to remove the old coil and connect a Jefferson coil. Starting conditions require a coil that will produce a hot spark when the battery is at the lowest ebb. Jefferson coils are guaranteed to take care of this extreme condition.

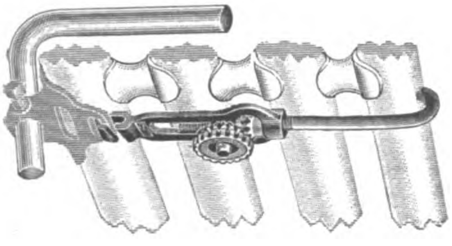
To aid jobbers, dealers, service stations and garage men the Jefferson Electric Manufacturing Co. have compiled a folder containing complete and authentic data covering all standard battery ignition systems. This folder lists all makes of cars from 1912 to the present date, and gives the year, model, type of ignition and style of Jefferson coils to be used for replacement. This folder will be sent free of charge to any dealer, garage, service station or jobber. Requests for the folder should be addressed to

The Jefferson Electric Manufacturing Co., Congress and Green Sts., Chicago, Ill. Prices quoted at request.

The Ever-Right Gasoline Gauge for Ford cars is a device designed for indicating the amount of gasoline in the tank at all times, and obviates the necessity of using a dirty stick or ruler. It is so arranged that the cork bobber and indicator rod is held flush with the top of the tank by a swivel catch. When it is desired to find the gasoline height the swivel catch is moved to one side, allowing the indicator rod to slip up through the cap. Notches in the rod indicate the amount of gasoline in the tank.



Manufactured by Ever-Right Products Corporation, Broadway, at 57th St., New York. Price, $1.

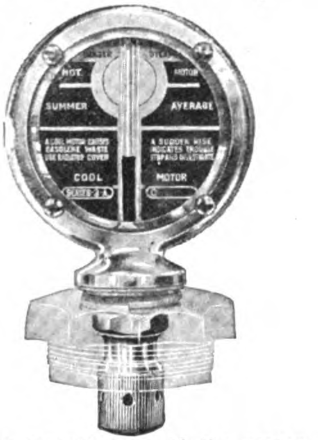


Top Bow Clamp. Every driver knows the aggravation caused by unusual knocks and noises about his car and does his best to keep them reduced to a minimum. Being subjected to so many varying stresses and strains, rattles and squeaks develop quickly, particularly where parts are subject to expansion, such as top holding straps, etc. To eliminate this trouble the Mosco Ford Top Bow Clamp has been designed. This device hooks on to the bow brace and over the top of the bows when they are folded back. By means of a small hand wheel the tension on the bows may be increased and the bows held rigidly into place.

The manufacturers claim that no amount of shaking will force the holder from its grip, neither will it slip nor mar the finish of the bows.

Manufactured by Motor Specialties Co., Waltham, Mass. Price quoted at request.

The Moto-Meter is the danger signal of motor trouble. Every defect in a motor, such as a leaky piston ring, warped valves or empty oil reservoir, is instantly reflected in the temperature of the water and the Moto-Meter immediately registers "danger." The car operator cannot fail to see the signal, as it is directly in his line of vision and no one will intentionally disregard signs of a defectve engine. The new model is designed especially for Ford cars.



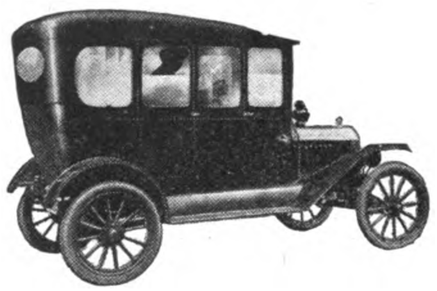
Manufactured by the Moto-Meter Co., Long Island, N. Y. Standard size, $10; the Overland, $10; the Junior, $5, and the Midget, $2.50; Ford size, $2.50.

The Atkins Hack Saw Blades have teeth which are milled and set so that they present the square point to the material which is being cut, instead of a corner, as in many other blades. This feature greatly increases the cutting capacity, for with an equal blade travel the blade has fully 25 to 50 per cent. more cutting surface than the blades where the corner only is used. These blades are made of an exceptionally fine grade of alloy steel, which responds to scientific heat treatment in a perfect manner. Made in all sizes.

Manufactured by E. C. Atkins & Co., Inc. Price quoted at request.

The Anchor Top and Body is built in a complete line of demountable winter tops for Overland, Oakland, Buick, Ford, Dodge and Oldsmobile cars.

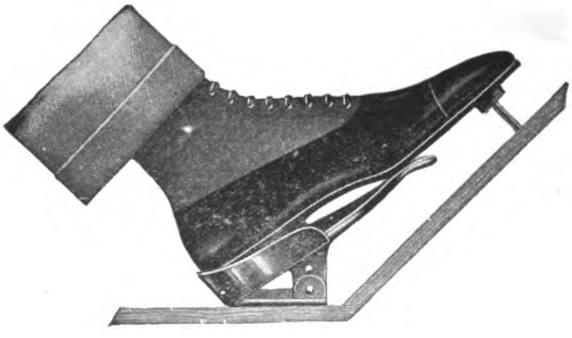
These tops are strongly constructed throughout, being built of selected hard wood stock, reinforced with steel. This frame is then covered with a high grade luster lasting water proof material and the interior is attractively lined in a soft gray cloth. All windows are of extra heavy crystal glass. Doors are so arranged that they open and close with the regular body doors of the car (except Fords). Windows of doors are provided with drop glass panes, which may be raised or lowered as desired, thus insuring ample ventilation at all times. Anchor tops fit snugly to the regular body of the car, with no overhang or unsightly attachments of any kind. All tops are shipped in such a manner that it is a very easy matter to install them on cars satisfactorily. All necessary attachments are furnished and as tops fit to regular body irons of car and are held there firmly by means of special irons, no difficulty should be experienced in getting tops on properly. Complete instructions are furnished and each iron is plainly marked where it is intended to be used. A large stock of all models are carried at factory for immediate shipments. However, in order to avoid delay in transportation dealers are advised to place orders early.



Manufactured by the Anchor Top and Body Co., Cincinnati, O. Price quoted at request.

G. A. C. Accelerator Foot Rest. Every driver of an automobile equipped with a foot accelerator realizes the importance of foot stability as effecting the car movement. With the foot supported upon the heel only, every jolt and jar of the car means a sudden acceleration or retardation of the speed and attendant strain upon the engine. The G. A. C. accelerator foot rest is a device that has been designed to relieve the foot and leg strain by carrying the weight of the foot in a specially designed rest, which is so arranged that the accelerator pedal may be held in practically any position with a minimum amount of effort. With this device, which is ornamental in effect, unsightly holes in the car matting, as well as shoe wear, is prevented.

Manufactured by the General Appliance Co., 127 Federal St., Boston, Mass. Price, $1.50.



MASTERS GASOLINE
METER
PAT. APP. FOR
00000
GALLONS
IRVIN W. MASTERS
MFR.
MUNCIE, IND.

The Masters Gasoline Meter is a round device 2½ inches in diameter with a row of figures which indicate the gasoline consumption in gallons and tenths. Reading the instrument is like reading an odometer. This meter can be used on any car equipped with a vacuum feed tank and the operation is such that each cycle of operation draws in and discharges a certain amount of fuel. It is connected through a small copper tube to the vacuum tank. Every time the tank is filled and emptied an impulse is sent to the meter and these impulses are deducted into terms of gallons and tenths and indicated on the face of the meter. Floats, cords, pulleys and such devices are not used in this instrument and it is one of the most practical and simple recording devices yet invented.

Manufactured by Irvin W. Masters, Muncie, Ind. Price, $8.

Lawco Silencer. A muffler which is said to eliminate back pressure and loss of power is now being put on the market under the name of Lawco Silencer. This silencer is designed for use upon any of the cars upon the market and comes complete with hangers and fittings ready for application.

Manufactured by the F. H. Lawson Co., Cincinnati, O. Price for Ford attachment, $2.50.

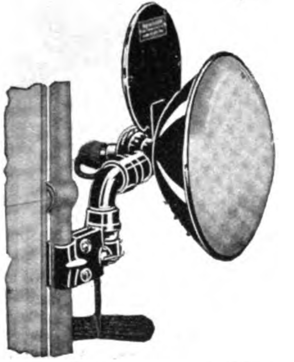
Portable Grease Cabinets and Pumps will handle oils and semi-fluid greases and also the heaviest transmission greases. The container is a painted heavy tin can of 20 pounds capacity, with handle and dust proof cover, provided with a nozzle hose. The valve castings have large grease openings, controlled by a single ball valve, assuring simplicity and strength. A baffle washer inside the container keeps the air from the pumps so that practically all the grease can be pumped out. The containers having 8½-inch openings can easily be filled.

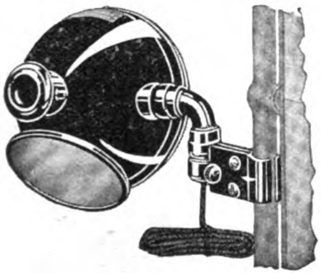
Manufactured by the Midway Mechanical Co., 1555 Selby Ave., St. Paul, Minn. Price quoted at request.

GREASE CABINET
C
MIDWAY MECH. CO
ST. PAUL, MINN.

Howe Spotlights. Two popular priced spotlight models, embodying the famous patented Howe principles, have been added to the Howe line. The No. 5 models of the double shell type, are torpedo shaped, with baked on enamel finish. It is fitted with a four-inch rear view mirror, an on-and-off switch in the handle, and the patented spring controlled Howe bracket, which permits instant turning at practically any angle, the spring holding the lamp firmly in any position. With this type, as with all models, clamps are furnished in seven styles to fit each and every windshield frame.

The light measures six inches across the face and with this exception is practically the same type as the old model nine.



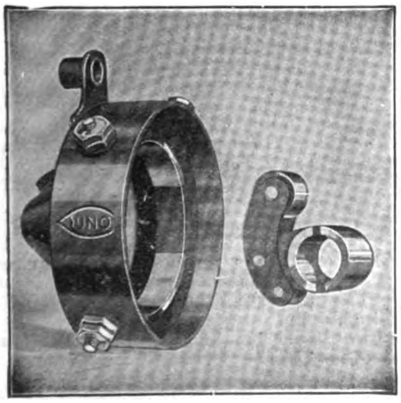


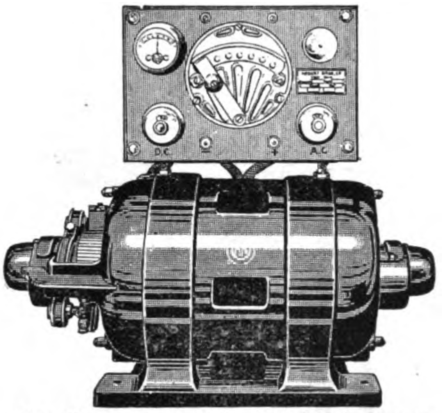
The Howe Junior No. 15 is a single shell spotlight of very sturdy construction. It is fitted with a convex lens, four-inch rear view mirror, an on-and-off connector switch and the standard spring bracket. It is finished in baked on enamel and is very attractive in design.

Manufactured by the Howe Manufacturing Co., 1732 S. Michigan Ave., Chicago, Ill. Price for No. 5, $5.50; Howe Junior No. 15, $4.

The Cuno Timer is designed to meet the demand for a high class, well built timer for replacement on Ford cars. It is made of light weight steel and is practically indestructible. It is finished in black enamel. The construction is such that it can be attached to any model T Ford car without any change. Constant lubrication is affected by splash from an oil well formed by the groove behind the fiber ring, which is filled occasionally through the oiler. The roller assembly is light, simple and strong. The roller and pin are made of special steel and are hardened.

Manufactured by the Cuno Engineering Corporation, Meriden, Conn. Price complete, $1.50.





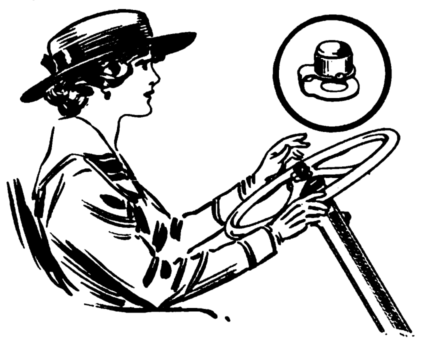
The HB Battery Charging Set is a compact and efficient arrangement of a motor operating from a direct or alternating city current, mounted on the same shaft with a generator specially designed for charging auto starting and lighting batteries. Ball bearings support the motor generator shaft at each end.

The charging system is complete with switchboard and ready to operate by connecting the city current to the upper binding posts. After making these connections the switch at the right controls the motor. The current for charging is delivered through the lower binding posts and is controlled by the switch on the left. This current may be regulated by moving the handle of the rheostat in the middle of the board. An ammeter shows the flow of current through the battery terminals.

Automatic voltage control in the generator permits the charging of different voltage batteries at the same time. If batteries are connected up wrong, the negative pole of the battery to the positive terminal of the machine, the generator will protect the batteries by reversing its polarity.

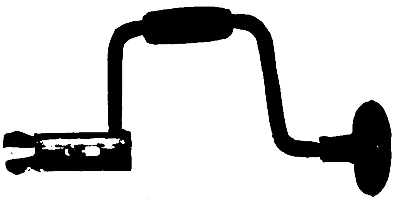
Manufactured by Hobart Bros. Co., Troy, O. Price, $150.

Handy Push Button. To be effectual an automobile warning signal must be so placed as to be effectual at a moment's notice. The Handy horn push button is designed with a holder so that it may be placed over the center nut of the Ford steering wheel and wired to the regular Ford button equipment. When this is done the movement of one hand seven inches is sufficient to reach the button and sound the horn.



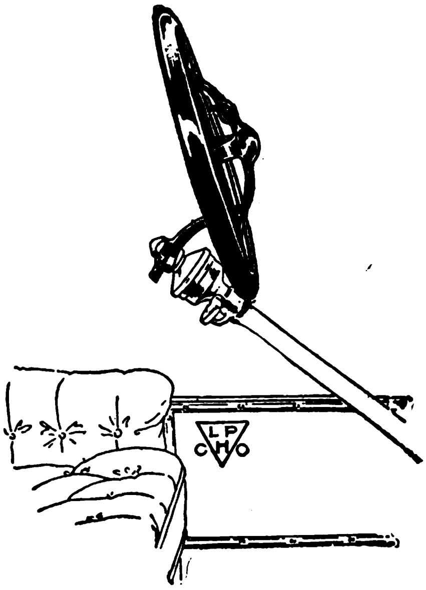
Manufactured by the Francis-Rand Co., Cleveland, O. Price, 75 cents.

The Utility Universal Rim Wrench is light, compact and fits easily into the tool box without folding. The brace is nickel plated, the tube contains jaws finished in black enamel and the handle corresponds.



Manufactured by the Hill Pump Valve Co., Chicago, Ill. Price, $1.50.

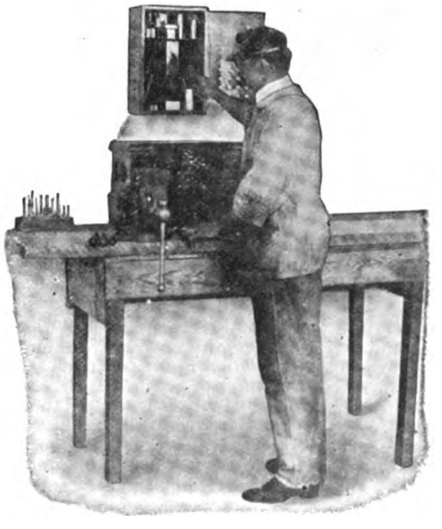
Halladay Steering Wheel. There is a demand for an adjustable steering wheel for Ford cars for two reasons. First, because such a device permits access to the driver's seat without disturbing the occupant of the other seat; second, because steering is made easier by means of a larger diameter wheel or by corrugations on the wheel rim. The Halladay adjustable steering wheel is attached to the Ford car steering column by the removal of one nut and the steering wheel, and when in place may be folded back by the releasing of a catch on the underneath side. The wheel may be obtained in either of two sizes, 15 or 17 inch, and has either a plain or corrugated rim.

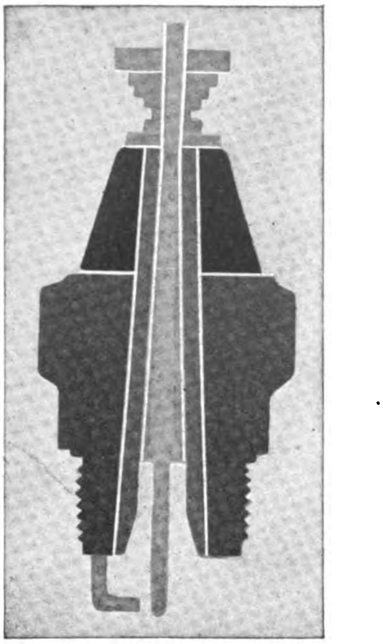


Manufactured by L. P. Halladay Co., Streator, Ill. Price quoted at request.

Tool Cabinet. In every garage and repair shop many valuable tools are mislaid or lost. The H. & H. tool cabinet provides a safe place where such tools may be kept under lock and key. The workman's time is not wasted searching for tools which have been left on the bench for lack of place to put them when not in use. These cabinets are made of cold rolled sheet steel and when ordered in quantities can be made with any desired arrangement of partitions or shelves. They are arranged for use with a padlock and fitted with spring hinges, which keep the door closed at all times. The finish is either black or olive green enamel, baked on. Stock size is seven inches deep, 12 inches wide and 18½ inches high.

Manufactured by the Hart & Hutchinson Co., New Britain, Conn. Price quoted at request.





"The Answer to Spark Plug Troubles" is the advertising slogan used with the Answer Spark Plug, a cross section cut of which appears herewith. The Answer plug is made up as follows: A special steel spindle larger at the bottom than at the top is covered by a layer of mica insulation which, owing to the construction, is at all times under a pressure. The spindle with the mica insulation, which is 3/32 inch thick, fits into the base of the plug, the top of which is made up of mica insulation compressed and polished. The electrodes are guaranteed not to burn or fuse.

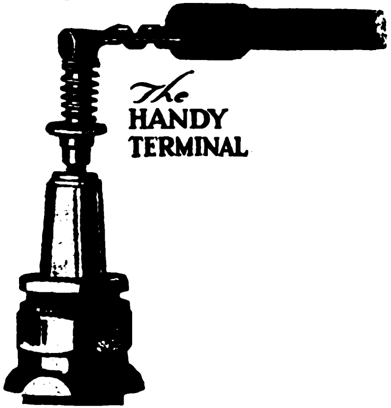
Manufactured by the Hilborn Co., Inc., 535 Canal St., New York, N. Y. Regular sizes, $1. Ford special, 75 cents.

The Knickerbocker "Made Right" Motor Luncheon Outfit, as illustrated, is combined luncheon and suit case arranged, so that the entire equipment may be removed and the case used as an ordinary suit case when desired. This style is made in three sizes, suitable and equipped as desired for two, four, six or seven persons, and are furnished complete with cutlery and dishes or with just food boxes as desired.

In addition the Knickerbocker "Pullman Diner" luncheon case and table and the Convertible Auto Refrigerator luncheon case and trunk are popular styles, offering most practical and convenient features. All cases have compartments provided for carrying two or more of any standard thermos or vacuum bottles or jars.

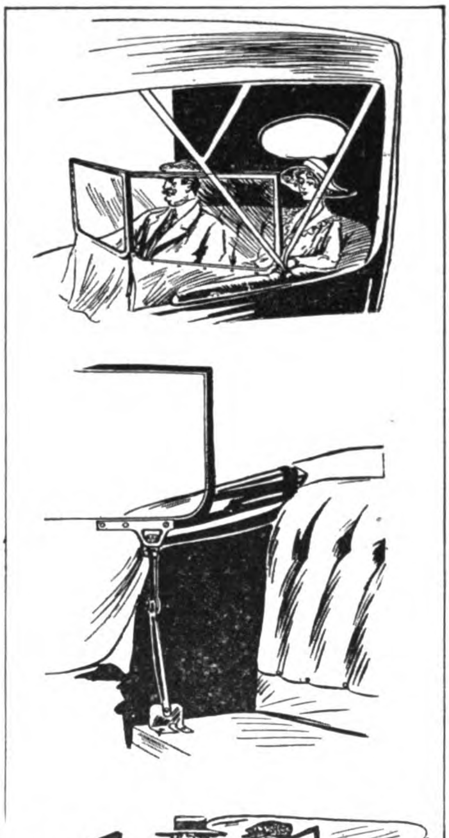
Manufactured by the Knickerbocker Case Co., Fulton and Clinton Sts., Chicago, Ill. Prices range from $13 to $42.50.

The Handy Terminal is for use on practically any type of cable connection, and is connected without soldering. The ferrule is fitted to the cable and the stripped wire firmly held by a copper clip, which is claimed not to work loose. The jaws of the device are threaded on the inside and engage the threads or the spark plug center bolt. One motion raises the ring, compresses the steel spring, releases the terminal and lifts it from the bolt.



Manufactured by the Francis-Rand Co., 400-401 Erie Bldg., Cleveland, O. Price, 25 cents each.

The Clark Tonneau Windshield eliminates the strong wind pressure and the clouds of dust which often envelop those on the rear seat. The windshield is easily attached without disturbing the upholstery on the car. When it is not in use it is turned back out of the way, but can be brought into service by a slight pull.

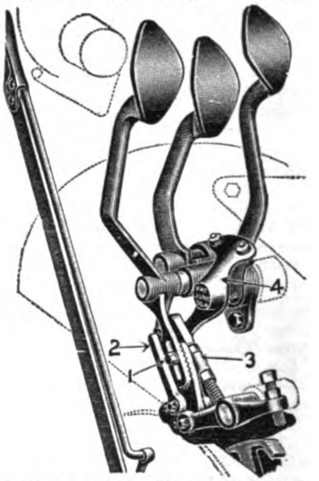


Manufactured by A. N. Clark & Son, Plainville, Conn. Price quoted at request.

Presto Electric Heater. A new accessory which has just been put on the market should be of great interest to motorists who plan to run their car during the winter months, yet are unable to afford a heated garage. This device is an electrical engine heater called the Presto and operates upon ordinary electric house current. It measures 12 inches in length and is designed to hang under the hood, near the carburetor or radiator, distributing the heat where it is most needed. With the heater is furnished 10 feet of cord and an attachment plug for any electric light socket. It may be used on 110 volt current, either direct or alternating. The manufacturers claim a very low cost per hour operating this attachment and say that with it the engine is kept to an operating temperature, regardless of outside temperatures.

Manufactured by Metal Specialties Mfg. Co., 338-352 N. Kedzie Ave., Chicago, Ill. Price quoted at request.

Automatic Simplifier. A new device for simplifying the driving of the Ford car is being placed upon the market. By its use full control of the car is through but one pedal. The action is entirely automatic and the engine cannot be "killed" by quick application of the service brake. As the brake pedal is pushed forward the high speed is automatically released and held in neutral position until released by a slight touch of the foot. The action of low and high speeds through the pedal is not changed, but immediately the brake is applied a neutral speed position is obtained. The emergency brake need not be used except as an additional precautionary measure. The reverse is obtained as usual, but with the attachment, it is unnecessary to hold the clutch pedal at neutral. The device is easily and quickly installed on any Ford car without drilling any holes.

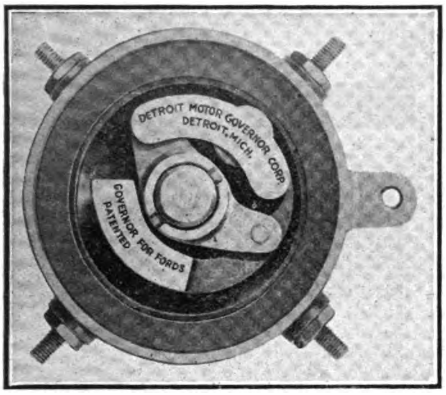


Manufactured by Marion Metal Products Co., Marion, Ind. Price, $5.

Auburn Valve Lifters. This is a so-called one-piece, self-adjusting valve spring lifter, made of malleable iron. The manufacturers claim that it cannot get out of order, as it has no hooks, springs or chains, and no separate pieces to become lost. It is made to fit all cars and is finished in black.

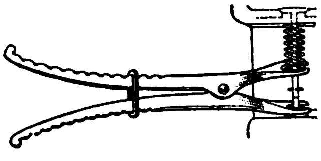
Manufactured by Auburn Ignition Mfg. Co., Auburn, N. Y. Price, 75 cents.

The Detroit Motor Governor governs the speed of the Ford engine. It takes the place of the roller or brush in the Ford timer case, where it performs both the function of the brush and a speed regulator. It does not alter the mechanism, but automatically cuts out the distributor by centrifugal action if the engine is running in excess of 1400 to 1600 revolutions per minute. As the engine is slowed the governor releases the brush and it starts to work automatically.



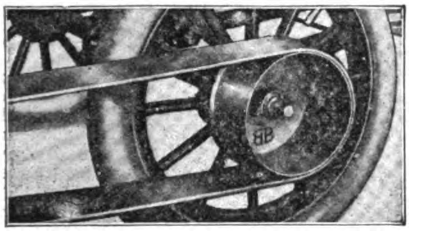
Marketed by the Forthe Detroit Motor Governor Co., Detroit, Mich. Price, $5.

Best Valve Lifter. We illustrate here a handy, malleable iron, valve lifter, which the makers claim to be one of the best on the market. The holding ring is slipped up and down the handle for adjustments.



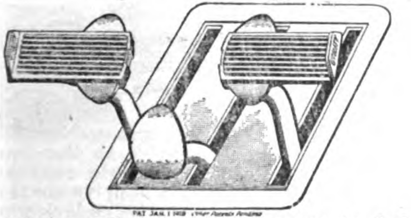
Manufactured by Fish-Best Co., Grand Rapids, Mich. Price, 50 cents.

The Bayne "B B" Auto Power Pulley is an ordinary five-inch crown face belt pulley 10 inches in diameter, correctly designed, so that it can be attached to either rear wheel of an automobile by simply unscrewing and replacing the hub cap, and when so attached is a perfect belt power pulley for transmitting power to any belt driven machinery.



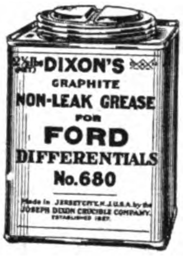
Manufactured by the Bayne Manufacturing Co., Bushnell, Ill. Price, $5.65.

Utility Sure Grip Pedals for Fords are made of pressed steel finished in black enamel and are equipped with heavy pads of rubber edged with metal. They are easily and instantly attached without the use of drilling tools, the tightening of a nut being all that is necessary to hold them securely in place.



Manufactured by the Hill Pump Valve Co., Archer Ave. and Canal Sts., Chicago, Ill. Price, $1 per pair.

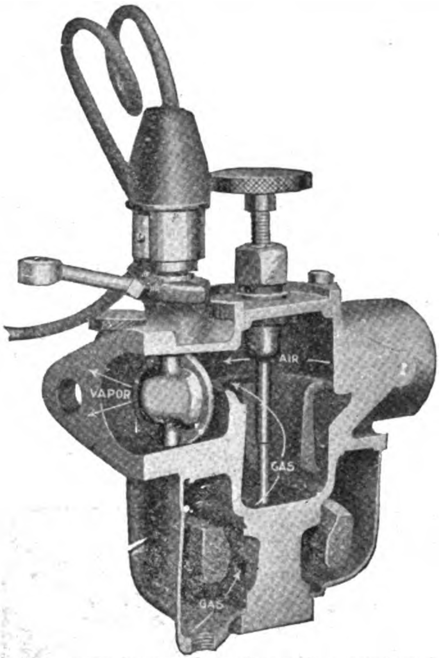
Dixon's Non-Leak Grease No. 680 solves the problem of grease exuding from the rear axle to the brake bands and wheels of the car. Excess grease not only detracts from the appearance, but also produces a danger element, in that the lubrication of the brake bands prevents their proper functioning. It is composed of selected flake graphite, thoroughly mixed with a special adhesive lubricant.


DIXON'S
GRAPHITE
NON-LEAK GREASE
FOR
FORD
DIFFERENTIALS
No.680
Made in JERSEY CITY N.J. U.S.A. by the JOSEPH DIXON CRUCIBLE COMPANY.

Manufactured by Joseph Dixon Crucible Co., Jersey City, N. J. Price quoted at request.

Electrically Heated Valve. The proper application of heat to the gasoline as it leaves the carburetor is said by engineers to be the easier solution of the hard starting problem, which is greater at the present time than ever before on account of the low grade fuel.

The Electrically Heated Throttle Valve is designed to heat the mixture of gasoline and air as it leaves the carburetor. As it passes from the carburetor into the manifold it comes in contact with the throttle valve, which is electrically heated, the current being controlled by a resistance coil. For starting, from four to six amperes may be used, and as the engine is warmed the current may be cut to from two to three amperes.

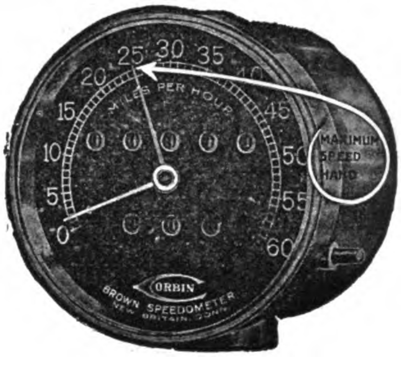


This device may be used on practically any car and run on either storage battery or dry cells.

Manufactured by Jones Electric Machine Works, 1319 Fletcher Savings and Trust Bldg., Indianapolis, Ind. Price $3.75 for Fords.

Corbin-Brown Speedometers are made for automobiles, motor trucks and motorcycles, and in special models for Ford cars, operate on the centrifugal principle, and thus are not affected by extreme temperatures or by electrical influence. Quick jumps or slumps of the thermometer do not disturb the Corbin-Brown reliability, nor is the instrument affected by the electrical influence exerted through an electric lighting system or an electric self-starter on a car.

The drive gears and shaft are in one piece for greater strength and accuracy. The cable is of the exclusive link type, which gives maximum strength and practically eliminates friction in the casing. It is almost unbreakable, but if a repair should be found necessary a new link can be easily inserted by anyone. While this cable is strongly recommended by the Corbin company, the flexible shaft type can be supplied instead if desired.



One of the most valuable exclusive features of the speedometers is the maximum speed hand. This hand, fitted as an extra, registers the highest speed attained by the car and remains at that point until reset at zero. This can be done in an instant at any time.

The maximum speed hand does away with the annoyance and risk of watching the speedometer to keep track of speed while traveling at a fast pace. The record of highest speed remains as long as wanted.

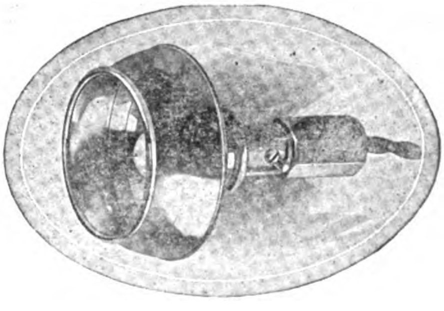
For use on motor trucks, the maximum speed hand can be supplied with locking arrangement to prevent resetting by the truck operator. It thus acts as a reliable check on overfast driving, as the speed record remains for inspection by the employer. It cuts repair bills, eliminates accidents and adds to the life of the truck.

The special models for Ford cars can be supplied complete with handsome cowl board, or simply with a neat bracket for attaching to the dash.

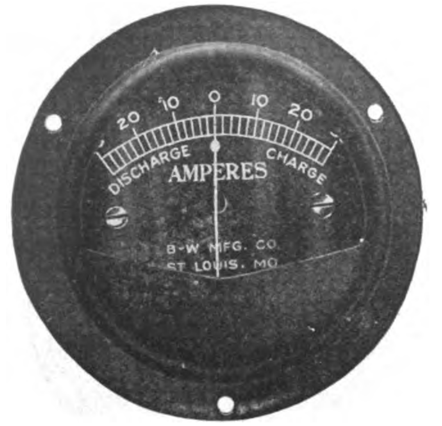
The Corbin company has an interesting illustrated catalogue, dealing in full with the attractive features of its speedometer line, which will be sent upon request.

Manufactured by the Corbin Screw Corporation, New Britain, Conn. Price quoted at request.

The Cellbeam Concealed Spot Lamp is a radical departure from conventional types of spot lamps in that instead of being used clamped to the windshield it is carried in the hand and attached with a clip to the dash or instrument board. The device projects a concentrated beam which extends 500 feet in a straight line and a diffused glow which illuminates nearby objects at a greater angle. It is fitted with a six-volt nitrogen bulb, 30 candle power, and silvered reflectors. The exterior is finished in polished nickel and the handle is fitted with the focussing adjustment. With the device is furnished five feet of flexible cord, which is connected with the battery in the usual manner, making an excellent "trouble lamp."



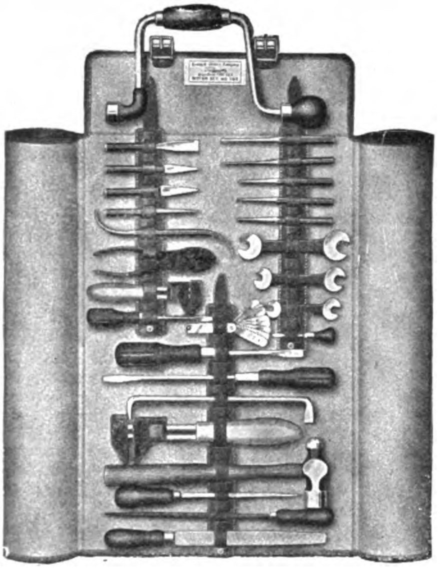
Manufactured by Cellbeam Corporation, 501 Fifth Ave., New York City. Price, $5.



The B-W Ammeter has a case of drawn brass finished in either bright nickel or black rubberoid. It is supplied in either surface or flush types. The glass is held in place with a special baked cement, which makes it waterproof, and is further reinforced with a wire locking ring, which eliminates any chance of the glass working loose. The movement is said to be practically vibrationless, that is, not affected by engine or rough road jars. It is of the permanent magnet iron vane type and is not affected by short circuits. The scale is of the usual etched type and several different finishes are optional.

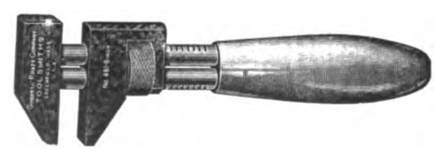
Manufactured by Ballman-Whitten Manufacturing Co., 4440 Olive St, St. Louis, Mo. Price quoted at request.

The Motor Set is a handy tool kit, holding tools for making ordinary road repairs on an automobile. They are contained in an extra heavy bound canvas roll and are held in place by long leather straps.



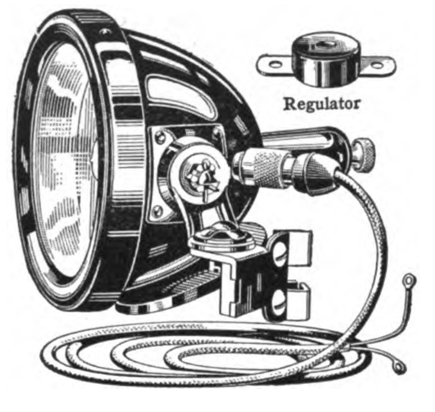
Manufactnred by Goodell-Pratt Co., Greenfield, Mass. Price, $18.

An Adjustable Wrench is shown of a somewhat different design from the ordinary wrench in that the adjustable jaw slides on two steel guide rods, which are cast into a polished aluminum handle. The jaws are made of case hardened steel and the adjusting nut of the small size wrench is made in two sizes, six and 10-inch.



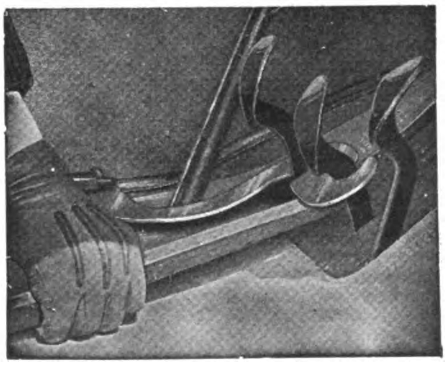
Manufactured by Goodell-Pratt Co., Greenfield, Mass. Price on large size, $2; on small size, $1.

Dynolite, a high grade spotlight, designed especially for Ford cars, and of the true parabolic type, is the new member of Vernal Products family, which includes Genolite and Constolite, a starting and lighting system for Fords, that has been sold in large volume. Dynolite throws a brilliant light more than 2000 feet ahead of the car and it can be focussed instantly to comply with any anti-glare regulations. The maker claims it is the first and only practical windshield spotlight that has ever been built exclusively for use on Ford cars, and that it possesses several patented features that cannot be found in other lamps. It can be focussed without the use of tools; the current can be turned off or on instantly by means of a foolproof switch in the handle; it has a waterproof swivel joint; has a bracket that fits all Ford cars; has interchangeable parts and has bayonet locks to secure door and reflector and lens. Dynolite operates off the magneto and uses a six-volt, 24 candlepower bulb. It gives almost full power at low speeds, and maximum light at speeds above nine miles per horsepower. Integral with the body is a mirrorscope, providing a view of traffic behind or beside the driver. The foregoing gives some of the features of the lamp and the maker's free literature amplifies the information.



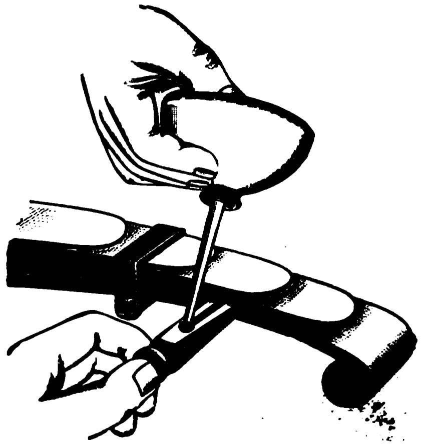
Manufactured by the Detroit Starter Co., Detroit, Mich. Price quoted at request.

Essansee Lock. A simple little device designed to make the locking of a Ford car a practical matter is illustrated herewith, and called the Essansee Lock. This device consists of an S shaped steel fitting, which is placed around the high speed clutch pedal and against the reverse pedal, holding the reverse and high gears in and making the removal of the car practically impossible. The device is locked into place back of the emergency brake lever.



It is said that the device is as strongly made as are the pedals, so that even if a crow bar were used to pry the device from its place the pedals would be broken before the device itself.

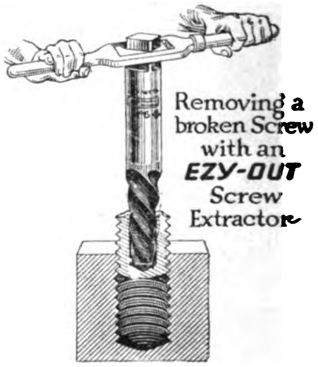
Manufactured by Essansee Lock Co., Land Title Bldg., Philadelphia, Pa. Price quoted at request.



The Cochran Spring Oiler affords an easy and simple method of getting oil between the springs of the car. To use the car weight is lifted from the springs by means of jacks and the oiler simply inserted between the spring leaves and the oil squirted into the groove of the oiler, from which it flows to the lubricating points.

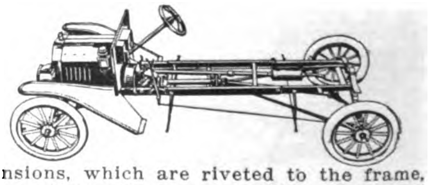
Manufactured by the Cochran Pipe Wrench Mfg. Co., 7800 Woodlawn Ave., Chicago, Ill. Price quoted at request.

Ezy-Out Screw Extractor Sets, as the name implies, are designed for the extraction of broken screws, studs and other parts which are held in place by threads and which have their heads broken off so that the screw driver or wrench cannot be used in removing them. As the accompanying illustration shows these tools enable one to do a quick, clean job without loss of time or temper, as it is only necessary to drill a hole in the broken piece, insert the "Ezy-Out" tool and the broken section can be unscrewed on its own threads without endangering the threads in the original hole.


Removing a broken Screw with an EZY-OUT Screw Extractor

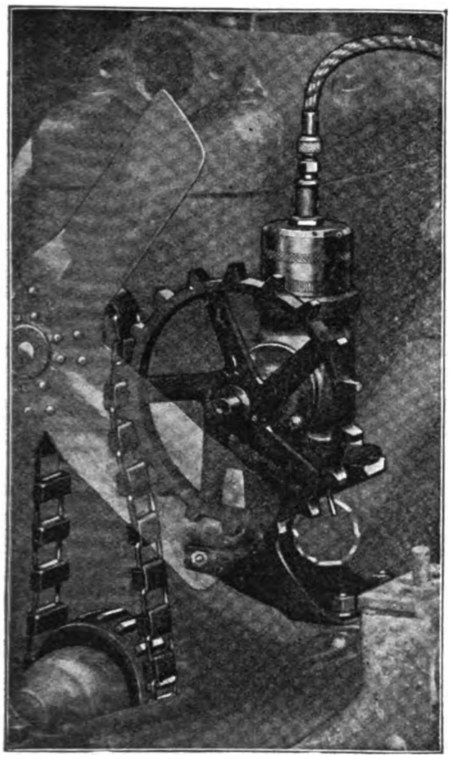
Manufactured by the Cleveland Twist Drill Co., Cleveland, O. Prices quoted at request.

The Greb Extension. The demand for truck delivery exists in practically every part of this country, and is constantly growing. The Greb Extension is designed to lengthen a Ford car to 115 or 130-inch wheelbase, thus making that pleasure car into an economical and efficient 1000-pound delivery truck. The equipment as furnished consists of two channel iron extensions, which are riveted to the frame, thus eliminating any possible chance of breakage. A universal and drive shaft assembly, all bolts, screws, rivets, lock washers and nuts complete with full directions.



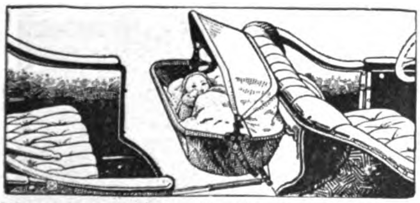
Manufactured by the Greb Co., 202 State St., Boston, Mass. Price for 115-inch extension, $55; for 130-inch extension, $60.

The Crane Power Tire Pump and the Crowe Mechanical Fan Belt make a successful application of a power tire pump to the Ford car. The power is taken from the shaft of the engine. The Crowe Fan Belt consists of a steel chain into which blocks of oak tanned sole leather are firmly embedded. When used with the Crane Pump the belt serves a double purpose. In turning the fan it acts as a friction belt, as the fan pulleys come in contact with the leather only. The belt is engaged with the pump sprocket only when the pump is in operation, acting then as a silent chain and insuring a positive drive. Instead of being set into the moving piston, the Crane packing ring is stationary and the piston moves through it. By slightly turning the cylinder, which is threaded into the crank case, the ring is compressed (being of patented design and special alloy) so that it hugs the piston more closely; thus the adjustment is variable to compensate for any wear and the compression is increased at will. This adjustment can be made while the pump is in operation. The pump, bracket, 13 feet of pressure hose with gauge, bolts, nuts and driving parts, together with the fan belt, are sold complete ready for installation.

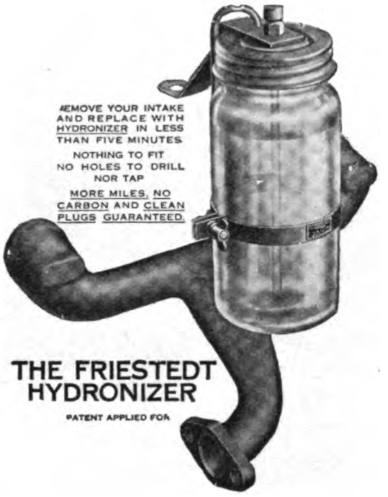


Manufactured by the Bay State Pump Co., 100 Purchase St., Boston, Mass. Price, $12.

The Gordon Motor Crib is easily strapped to the back of the front seat and is held in an open position by a spring connection to the floor or back seat with an adjustable strap. When thus suspended it is free from vibration and does not interfere with entrance into the tonneau. An adjustable hood protects baby from the sun or wind and the crib is easily folded against the back of the seat when not in use.



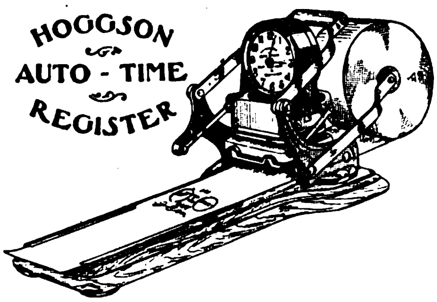
Manufactured by the Gordon Motor Crib Co., 27 South Water St., Chicago, Ill. Price, $10.


REMOVE YOUR INTAKE AND REPLACE WITH HYDRONIZER IN LESS THAN FIVE MINUTES
NOTHING TO FIT NO HOLES TO DRILL NOR TAP
MORE MILES, NO CARBON AND CLEAN PLUGS GUARANTEED.
THE FRIESTEDT HYDRONIZER
PATENT APPLIED FOR

Friestedt Hydronizer. More miles per gallon of fuel, carbon not only prevented, but removed, clean spark plugs and a smoother running engine are some of the outstanding features claimed for this device. It operates automatically, from the moment the engine is started until it is stopped. Air is drawn in through the top of the device and thence through the water in the reservoir. In passing through the liquid the air is saturated with water and is drawn into the engine through the manifold connection in the form of water vapor.

Manufactured by Friestedt Manufacturing Co., 2934-38 W. Lake St., Chicago, Ill. Price complete as illustrated, $6.50.

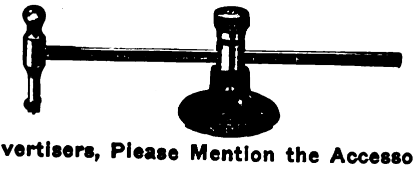
The Hoggson Auto-Time Register is designed to fill the requirements of the small shop employing only a few men. This machine not only records the "In" and "Out" of employees, but also "Sales Made," "Goods Received" or "Delivered;" in fact, everything coming to or going by the person in charge. The record is made on a paper strip from the roll attached to the back of the machine, which feeds through a guide. By the aid of suitable slips or cards it will time job work, cost of manufacture, etc., without any interference with the paper roll. It is self-inking and prints clear and distinct the year, month, day, hour, minute.



Manufactured by S. H. Hoggson & Co., 27 Thames St., New York City, N. Y. Price, $25 complete.

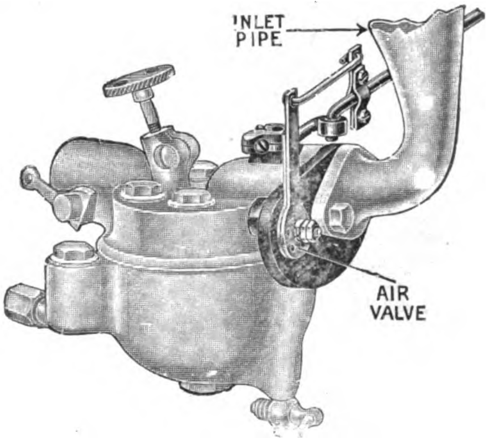
The Circular Glass Cutter shown in the illustration has a graduated beam that can be quickly and firmly set to cut circles of any size from two to 12 inches in diameter. Each of the cutters is provided with a high grade cutter wheel which has been carefully honed and tested by actual cutting before being mounted in the tool. The standard is equipped with a rubber base to prevent slipping.

Manufactured by Goodell-Pratt Co., Greenfield, Mass. Price, 70 cents.



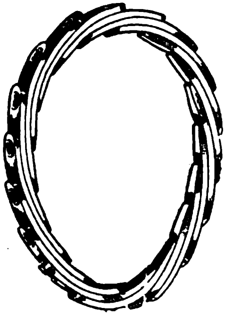
Gasco Economizer. Proper vaporization of fuel is a problem that is facing every automobile owner today. To get full power from an engine the mixing of gasoline and air in the proper proportions is necessary. The makers of the Gasco economizer claim that this device promotes vaporization, prevents back fire into carburetor and reduces carbon depositization.

The Gasco economizer is a device which is attached to the intake manifold, between that part and the carburetor. It consists of three screens of copper gauze, in a cone shaped arrangement, one within the other. It is said that the gas mixture passing through the screen is thoroughly broken up, forming a fine vapor, which materially lessens the difficulty of starting the engine. A 30-day trial of the device is allowed and if not satisfactory it may be returned and money will be refunded.



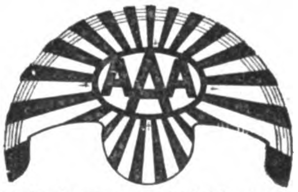
Manufactured by the Gasket Supply Co., 18th and Ludlow Sts., Philadelphia, Pa.

Flexo Laminated Belts are made in sections cut from solid back belting hides, assembled with steel copper plated rivets and fastened with machine screws and nuts so that they may be readily lengthened or shortened and adjusted. These belts may be obtained in widths from ⅝ to 1⅛ inches, and lengths as desired, endless or in rolls of 50 feet, with sufficient rivets and burrs or bolts and nuts for making them endless.



Manufactured by Detroit Leather Works, Detroit, Mich. Prices upon request.

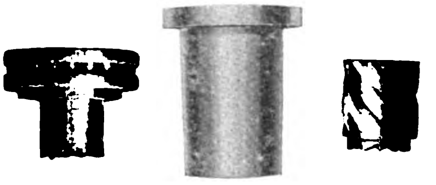
Glare-Off Headlights are placed inside the ordinary automobile lamp and are designed to throw the light downward and forward onto the road. They are made of metal and are ornamental as well as useful. The designs are worked out in a rich red, gold and black, and have the appearance of old Japanese lacquer and are to be had in a number of patterns.

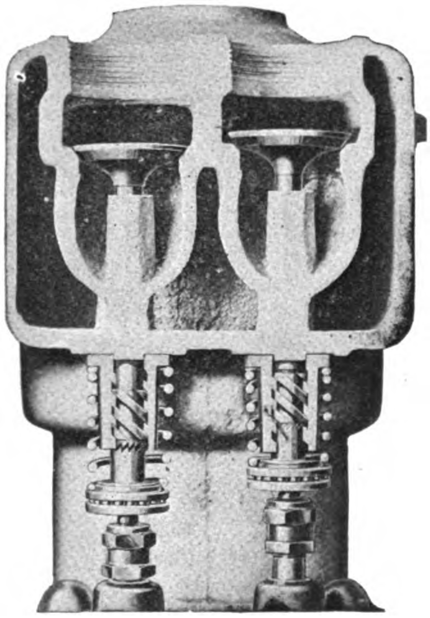


Made by the Glare-Off Co., 1777 Broadway, N. Y. Special monogram or initials furnished. Prices quoted at request.

Ceco Valve Rotator. Distorted valve stems, unevenly worn and pitted valve faces are three engine evils that make for loss of power and unsatisfactory action. The Ceco valve rotator is an ingenious device, for automatically rotating the valves of an engine, a small portion of a revolution, so that at every up and down motion the valve is seated in a different location.

The device consists of three main parts, A which forms the outside of the rotating member, made of bronze and fastened to the engine cylinder; B, the rotating member which fits into A, and slides upon the valve stem against a small but sharply defined shoulder; and C, which is fastened or locked to the stem and carries a ball thrust bearing for permitting the valve to turn freely against the resisting action of the spring. B and C have ratchet like projections, which prevent backlash. As the valve is lifted by the tappet the worm like fitting B is turned in the sleeve A, carrying with it the fitting C and turning the valve a small way. At the top of the lift, and at the beginning of the down stroke the fitting C is separated from B, allowing B to return to its original position without carrying C back. B is carried downward by the spring pressure acting through the shoulder of the valve stem.

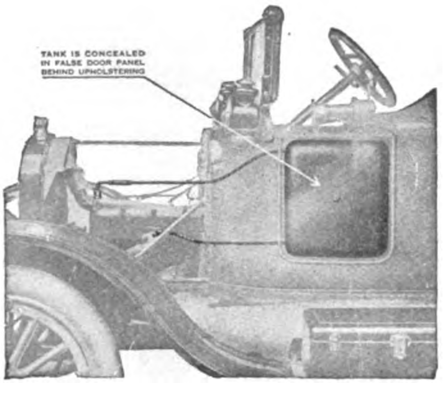




It is said that valve action is not hampered in any way, nor is there any attendant noise due to the valve rotator. The device is made in a number of sizes to meet the requirements of the valve assembly of practically any engine of standard make.

Manufactured by Continental Engineering Corporation, Omaha, Neb. Prices quoted at request.

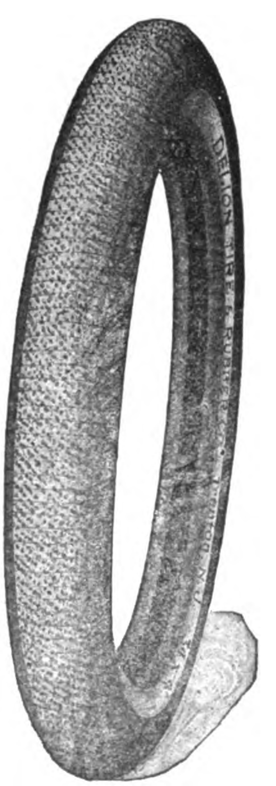
The Thermomat. With a car cooled by the thermo-syphon system the efficiency of the system is dependent upon proper circulation. Should steam pressure develop, the efficiency is materially decreased at times and the temperature of the engine immediately increases, often with disastrous results. The Thermomat is said to eliminate any possible chance for steam pressure to develop. It consists of a tank or vacuum chamber designed to be attached in the fore door of the car, with two pipes to connect it with the engine water circuit. The upper tube leads from the engine water outlet through the dash into the top of the vacuum condenser tank. The lower tube passes from the water space or bottom of the vacuum tank through the floor board to the engine water inlet elbow. The position of the tank is such that when the radiator is full the tank is a little over half full of water. As long as the engine is cool the condenser does not operate, but when the water begins to boil the condenser takes up its work and operates as fast as steam is generated.



Manufactured by the Cawle Co., 506 City Trust Bldg., Indianapolis, Ind. Price, $12.50.

Dellon Cord Tread Tires are a new kind of pneumatic tire which is guaranteed to be permanently non-skid and adjustable on the basis of 7500 miles of service, tread being composed of a combination of rubber stock and fabric, with the fabric standing on edge so as to come constantly in contact with the road surface. This feature gives the tire its non-skid qualities. The tread construction of the tire is entirely different from any other, for the fabric is impregnated with rubber under a new process by which the rubber is drawn into the fabric by suction instead of forced in by pressure. Thus the bond between the rubber and fabric is claimed to be much closer than by the other process.

Manufactured by the Dellon Tire and Rubber Co., Trenton, N. J. Price quoted at request.



The B.-W. Magneto Tester makes it possible to test Ford magnetos without removing the magneto from the engine and it constantly checks up and indicates any trouble. The tester consists of a reactance coil and an alternating current ammeter, all mounted in a neat wooden case. The scale of the tester is calibrated to show the proper strength of Ford magneto upon any model. The tester serves its greatest purpose when the engine is on the bench. It enables one to get the magneto perfect before reassembling the engine in the chassis. This is done by grounding one of the leads of the tester to the engine and holding the other lead to the contact of the coil frame with the fingers. The other hand revolves the flywheel. This can be done fast enough so that the tester will give a steady, accurate reading. Other tests can be made quickly and accurately by running the engine at any moderate speed, without disassembling, and the tester will indicate the exact condition of the magneto.

INSTRUCTIONS
MAGNETO TESTER FOR FORD CARS
B-W Mfg. Co.
ST. LOUIS, MO.
AMMETERS — COIL TESTERS
MAGNETO TESTERS

Manufactured by the Ballman-Whitten Manufacturing Co., 4440 Olive St., St. Louis, Mo. Price, $10.

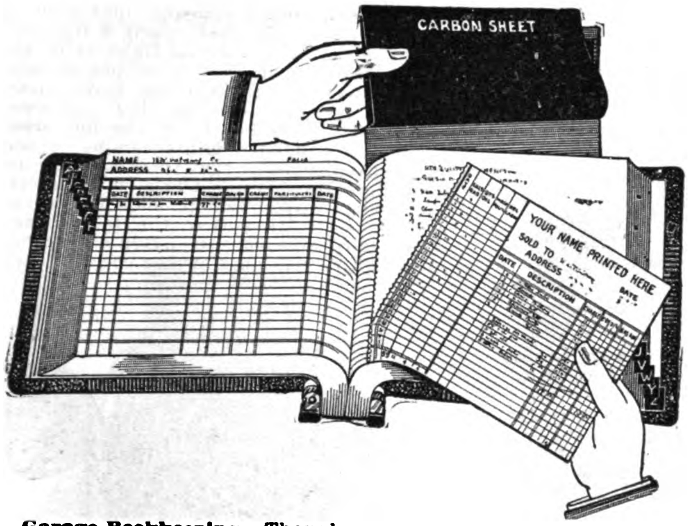
The Carborundum Co., Niagara Falls, N. Y., is marketing their Carbo valve grinding compound in a new combination, flat, oblong can, four inches long, two inches wide and one inch high, as shown in the illustration. This can is arranged to contain fine and coarse compound, two ounces of each, and the tin partition in the center keeps the two grades separate. It is a very convenient package, both from the shipping and stocking standpoint, as well as for the user, who will always find it right side up.

CARBORUNDUM
VALVE GRINDING COMPOUND
MANUFACTURED BY THE CARBORUNDUM CO. NIAGARA FALLS N.Y. U.S.A.

Manufactured and distributed by the Carborundum Co., Niagara Falls, N. Y. Prices quoted at request.

Curtain Light. The Gordon Curtain Light is equipped with special fasteners for applying it to the curtain on the back of the Ford car should it become broken. It is not necessary to take the rear curtain off when this light is used.

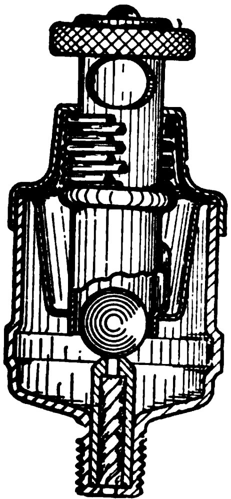
Made by the J. P. Gordon Co., Columbus, O. Price, 80 cents.



Garage Bookkeeping. Though many garage owners make every effort to install the most efficient machinery in the work rooms and to further the standard of workmanship without increasing the cost, many others fail to realize the value of an efficient and up-to-date accounting system. The bookkeeping question is just as important a part of the business as is the shop. Without it the profit is sure to decrease and the owner is unable to quote prices with any basis for computation. Illustrated herewith is a garage bookkeeping outfit designed for garage keepers. This system is said to be complete in every detail and is the result of much careful study by specialists in that line. The publishers make a specialty of systems for garages and repair shops and gladly give advice free. The value of such service may be appreciated by such garage owners as require a simple but efficient check upon the business.

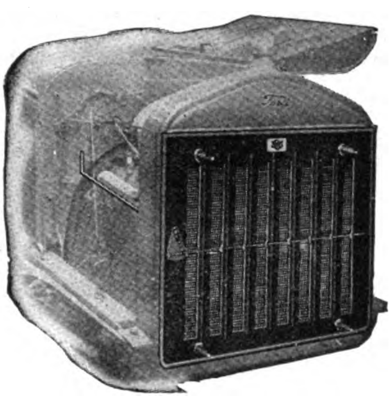
The Thomas J. Harton & Co., Inc., Church and Worth Sts., New York. Price quoted at request.

The Consol Automatic Oiler, which is automatic in operation and dirt proof, has many distinct features, fully protected by patents not heretofore used in any oiler. It is neatly made and comes in several styles and finishes. It absolutely prevents leakage of oil onto the bearing when the car is not in motion, for it takes the vibration of the car itself to upset a little ball valve which automatically controls the flow of oil from the cup. Already several automobile manufacturers have placed orders for these oilers, recognizing in same a distinct improvement over other oilers. The company is just starting the production on a large scale.



Manufactured by the Consolidated Machine Co., Detroit, Mich. Price quoted at request.

H-M Metal Radiator Cover. A handy device for the winter motorist is illustrated herewith and called the H-M Metal Radiator Cover. This device is made of sheet metal divided into eight adjustable shutters operated as one from the dashboard. It is attached to the radiator with springs, assuring a tight and non-rattling fit at all times. The cover may be entirely closed, half, three-quarter, quarter closed or entirely open, depending upon weather conditions.

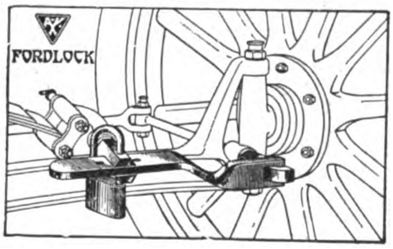


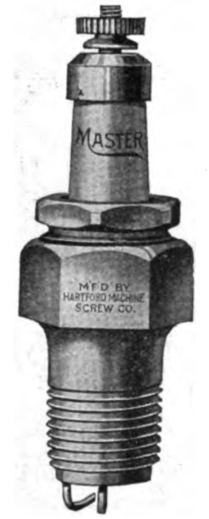
It is said that it is staunchly constructed and may be used many seasons.

Manufactured by the H-M Manufacturing Co., Indianapolis, Ind. Price quoted at request.

A-Y Fordlock. The illustration shows the A-Y Fordlock as it is applied to a Ford car. This locking arrangement is applied to the steering spindle and front axle of the car, and when locked into place keeps the wheels in one of three positions: Straight ahead, as shown, at the left, or at the right. The locking rod is made of heavy steel; the padlock itself of standard design. Though it would be nearly impossible, and very impractical, to tow the car any distance without removing the lock, it could easily be moved a short distance in case of fire, or to relieve traffic congestion.

Manufactured by Angsten-Koch Co., Princeton Ave., Chicago, Ill. Price complete with Corbin lock, $3.50.

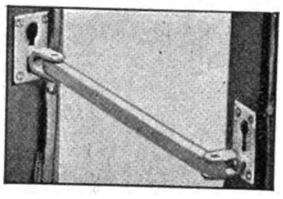



MASTER
MFD BY HARTFORD MACHINE SCREW CO.

Master Calorite Spark Plugs involve the discovery of the new insulating material known as Calorite, and its adoption in the Master plug, the makers claim, has revolutionized the spark plug industry. This substance subjected to severe electrical tests in competition with porcelain, as an insulating material, withstood a 10 per cent. higher voltage than the finest porcelain obtainable. Every Master plug is wrapped in felt and packed in a round metal box that may be carried in the tool box without fear of breakage.

Manufactured by the Hartford Machine Screw Co., Hartford, Conn. Price quoted at request.

The Hurricane Hook is a nickeled rod 5/16 of an inch and about six inches long. One end fastens to the door and the other end to the body holding the door open enough to let in the air, but not far enough to extend beyond the running board. Fitting flush there are no projections to tear the clothing nor rattle. When it is not in use it can be left hanging down or lifted off and stored away in the car pocket. It is adjustable to all makes of cars, is well made and mechanically correct.



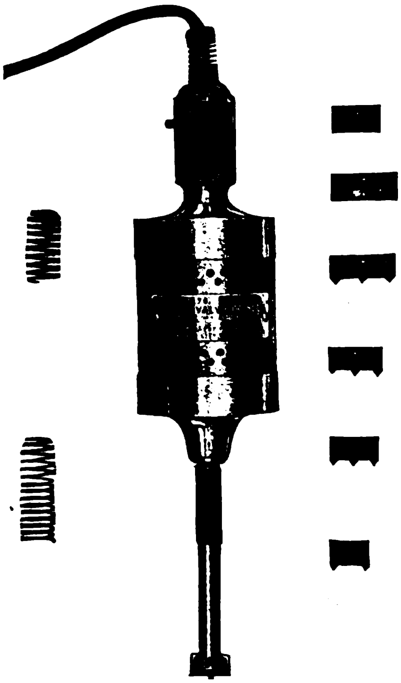
Manufactured by Joseph N. Smith & Co., Detroit, Mich. Price 60 cents.

Hoosier Patch. A handy repair patch is being put on the market under the name of Hoosier Patch. This article is designed to make a quick repair without the use of heat or gasoline, and the manufacturers claim that a repair made with this patch is practically permanent. They claim that the vulcanizing operation is accomplished by the heat arising from the friction of the tire when in use. With the outfit illustrated is included one patch, together with sand paper and patch solution in a self-sealing tube. In outfit No. 1 the patch contains 108 square inches; in outfit No. 2 the patch contains 54 square inches.

"Hoosier Patch"
WITH THE "BULL DOG GRIP"
A Self Vulcanizing Cold Patch
For Automobile and Motorcycle Tubes
HOOSIER PATCH

Manufactured by Hoosier Rubber Manufacturing Co., Inc., Starks Bldg., Louisville, Ky. Price of outfit No. 1, $1.75; outfit No. 2, $1.

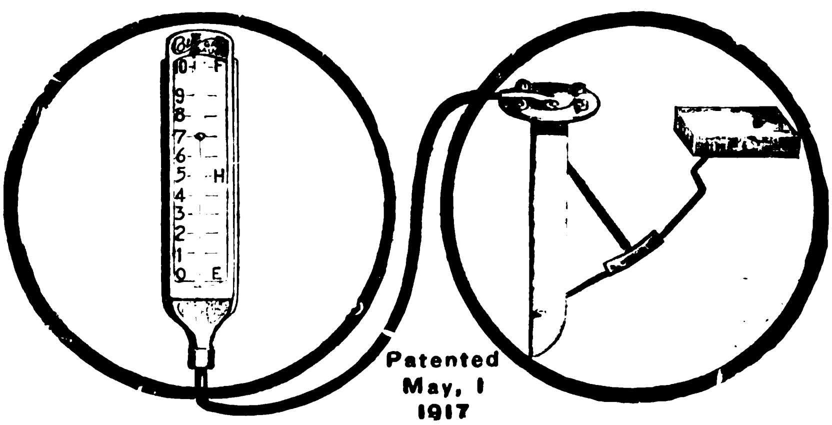
The Eclipse Valve Grinder is a practical and reliable electric driven machine, designed and built for the sole purpose of grinding valves to a perfect seat with the greatest possible dispatch and economy. The vertical handle with plunger switch affords perfect control, while the weight of the device (4½ pounds) is so proportioned as to secure the proper pressure for the best results; and the smooth gliding motion imparted by the ballistic movement produces a finish to both valves and seat that is free from grooves, scratches or other evidences of poor workmanship. With this machine few valves require as much as a four-minute treatment—many are finished in one minute.



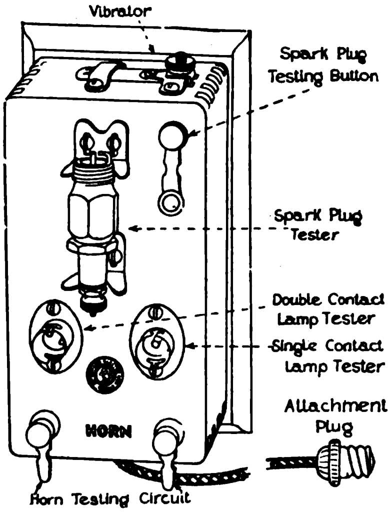
Manufactured by the Eclipse Valve Grinder Co., 415 Bonfils Building, Kansas City, Mo. Price quoted at request.

Cole Gasoline Gauge. No matter what car is being driven the driver at some time or other is apt to neglect the filling of the gasoline tank. This usually means a delay and possibly a long walk for more fuel. This trouble is said to be eliminated when the Cole Gas Gauge is used. This device is designed for any gasoline tank with the exception of those in cowl and operated by air pressure. It is made in two parts, the first or float part, is attached to the gasoline tank; the second or indicator, may be attached to the dash, or beside the wheel and visable at all times. It makes a handy device for checking up the car mileage with the gasoline consumed, and is an assurance that the gasoline purchased is full measure.

Manufactured by the Halewick-Muehlhausen Co., 2350 West Austin Ave., Chicago, Ill. Price $5 for any make of car.



Patented
May, 1
1917


Vibrator
Spark Plug Testing Button
Spark Plug Tester
Double Contact Lamp Tester
Single Contact Lamp Tester
Attachment Plug
HORN
Horn Testing Circuit

Combination Tester. A handy all around testing device for the repair man and accessory dealer, as well as the individual is illustrated. It is designed for testing spark plugs, single or double contact lamp bulbs, horns, or for locating general electrical troubles. There are two types, the first for attachment to alternating current lighting circuits, and the second for battery attachment. In either case lamps of any candle power or voltage, spark plugs of any length, or electric horns of any voltage can be tested.

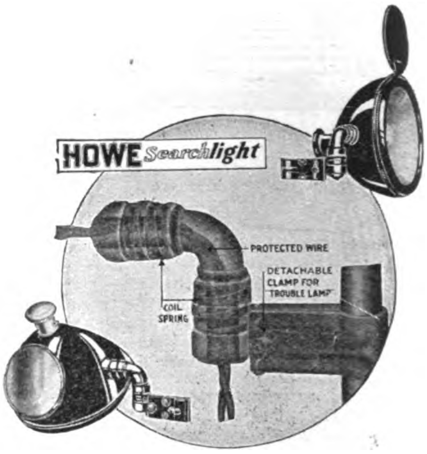
Manufactured by Jefferson Electric Mfg. Co., 426-430 South Green St., Chicago, Ill. Prices quoted at request.

Common Sense Auto Polish is a non-greasy liquid that is strong enough to remove all foreign matter, even cup grease, but is so mild that many of the large piano dealers in the country use it to keep their stock in good condition. It cleans and polishes in one operation, removes all road oil and grime down to the original factory finish and leaves a highly polished dry surface that will not collect dust.

COMMON SENSE
AUTO POLISH
THE
GREASELESS
CLEANSER
AUTOMOBILES
AND ALL HIGHLY
FINISHED SURFACES
COMMON SENSE MFG CO

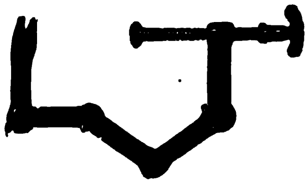
Manufactured by the Common-Sense Manufacturing Co., St. Louis, Mo. 35c size, 75c size, and quart, $1.50.

Howe Searchlight Bracket. Inasmuch as the idea behind the searchlight is the providing of a freely turning light, it is obvious that the bracket is of importance. One of the advantages of the Howe spotlight is its ingenious bracket arrangement. This bracket is of the universal joint type and both joints can be turned at the same time so that the lamp may be moved instantly at any angle, with but little effort. Although it may be moved easily, it is said that the lamp stays where it is directed until again moved because of the patented spring control. Two coil springs hold the two joints in a firm, even pressure, make it easy to burn, but hold it firmly wherever turned unaffected by jars and vibration.



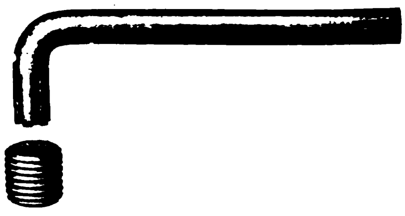
Manufactured by Howe Mfg. Co., Chicago, Ill. Price quoted at request.

Universal Clamp. As the name indicates, the Crescent Universal Clamp is an all around, universal tool. It is made of the best malleable iron with steel screw and square cut threads. It can be adjusted from a straight bar to a hoop, and presents a rigid position at all angles. It has many uses; as a valve lifter it may be adjusted to fit practically any valve system; it can be used as a straight or off-set bar for close work around the engine and is of assistance in removing tires.



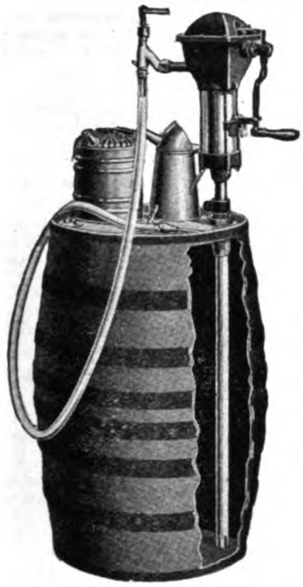
Manufactured by Chas. D. Durkee & Co., 2 South St., New York City. Price quoted at request.

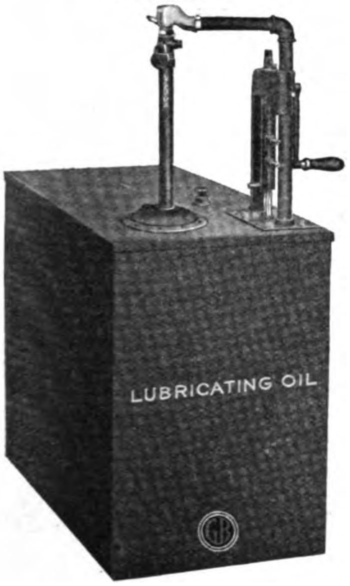
The Bristo Safety Set Screw is equipped with dove-tailed slots or flutes, into which the corresponding dove-tailed projections of the wrench fit. When these set screws are being set up by means of this special wrench there is no tendency for the wrench to expand or split the screw, even if great pressure is applied to the handle of the wrench, but instead there is a tendency for the wrench to contract the screw on account of the angles at which the faces of the dove-tailed flutes and slots bear against each other.



Manufactured by the Bristol Co., Waterbury, Conn. Prices for standard and special screws sent upon request.

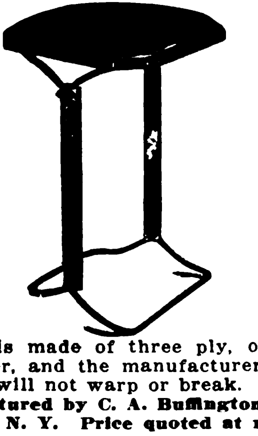
The Gilbert & Barker T-30 Handling Outfit can be furnished as a unit or as a battery of units to handle several grades of oil. The pump measures accurately quarts or lesser quantities; fills the oil can without overflow or waste. A drip pan returns the oil accidentally spilled; a stick gage shows the approximate contents of the tank and a lock safeguards the supply.



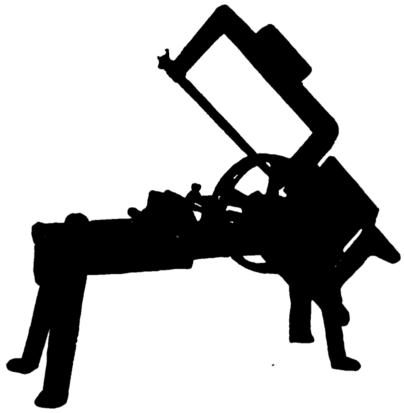


Manufactured by Gilbert & Barker Manufacturing Co., Springfield, Mass. Price quoted at request.

The Buffington Folding Upholstered Stools are made with seats upholstered in imitation leather, black or maroon, tufted with hair and measuring 11 inches square. The seat is made of three ply, one-half inch veneer, and the manufacturers state that they will not warp or break.



Manufactured by C. A. Buffington & Co., Berkshire, N. Y. Price quoted at request.



The E. & S. Power Hack Saw is a high speed machine with a sawing capacity of 4 by 4 inches. The saw arm takes a nine-inch blade and is driven by a crank working between V bearings and is equipped with a sliding weight to regulate the pressure to secure the best results from the saw blade. It has an automatic stop and is driven by a 2x10 crown pulley, or a crank can be furnished for hand driving.

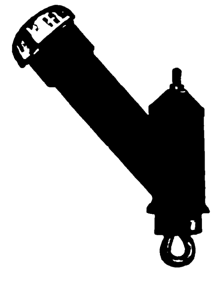
Manufactured by Ellis-Smith Manufacturing Co., Inc., 216 Niagara St., Buffalo, N. Y. Price, $18.

The Holtzer-Cabot Gasoline Strainer is made of an aluminum casting with a bronze wire screen of 120 mesh with over six square inches of surface. The gasoline enters through the bottom of the strainer and passes up through the screen, thus making it possible to remove all dirt and water that falls to the bottom of the strainer, through the screw plug at the bottom. The wire screen cap can be taken out by unscrewing the top wing nuts.

Manufactured by the Holtzer-Cabot Electric Co., Roxbury, Mass. Price quoted at request.

Hoyts Quality Breather and Oil Filler Pipe is intended for Ford cars. It prevents oil from spraying over motor, fan belt, wires and inside of the hood, and makes replenishing of oil an easy matter without spilling. Inside of the breather there is a very fine mesh strainer, which strains all oil poured into the motor. Installation is said to be very easy and when once fastened by passing timer bolt through hook, as shown in cut, it becomes stationary and cannot rattle loose.

Manufactured by Hoyts Auto Supply Co., 370 Fairfield Ave., Bridgeport, Conn. Price, 75 cents.

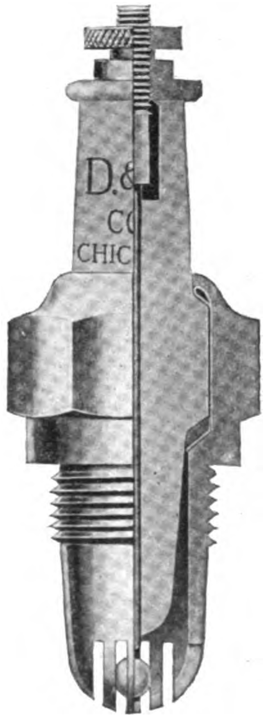


Howe Counter Display. That the counter display is an aid in selling goods has been demonstrated in many cases. It acts as a memorandum to the customer, and, if the display is attractive, frequently "persuades" the buyer into making an unexpected purchase. The Howe display, illustrated herewith, is attractively lithographed in red, white, blue, gray and black, and upon it is provided a space to show styles of the standard size. Howe searchlights, with and without rear view mirror, and also the Howe Junior, a single shell popular priced model. In addition to the light display are spaces for six of the special Howe clamps by which the lights may be attached to various types of windshields. This attractive display stand for counter or window display, together with a set of windshield clamps, is furnished free to Howe dealers.

HOWE
THE WINDSHIELD SPOTLIGHT OF QUALITY

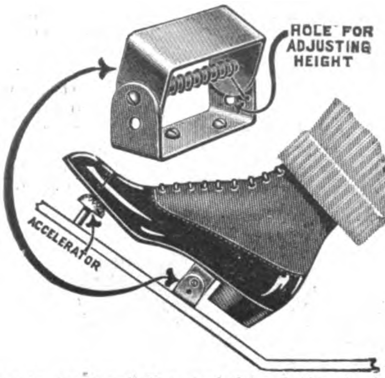
Manufactured by Howe Mfg. Co., Michigan Ave., Chicago, Ill. Price quoted at request.

D. & D. Spark Plug. This plug consists of a moving ball imprisoned in a slotted cage, and so designed that the ball is held at all times between the plug electrodes, but free to move or vibrate. Due to the varying compression and the movement of the piston the ball is in motion constantly as long as the engine is running, thereby keeping all of the sparking surfaces free and clean from carbon or soot. It is also claimed that the ball has a condensing or storing effect, thereby increasing the intensity of the spark and making the explosion stronger.



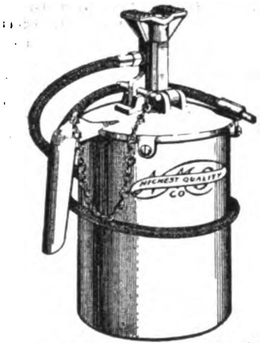
Manufactured by the D. & D. Co., 20 E. Jackson Blvd., Suite 810, Chicago, Ill. Price, $2 each.

The New York Foot Supporter was designed to overcome the great amount of leg and muscle strain in operating the accelerator over rough roads, for every jar or jolt is transmitted through the foot and has its effect upon the action of the engine. As the illustration shows it is attached to the footboard in such a manner as to support the weight of the foot upon an adjustable hinge. Two screws secure the device and once installed the position is always correct.



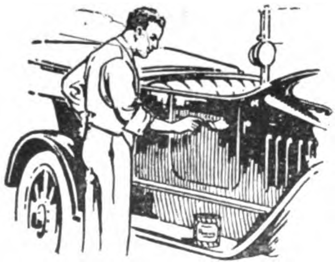
Manufactured by New York Coil Co., 338 Pearl St., New York City, N. Y. Price quoted at request.

Pneumatic Jack. Jacking up the car is one of the necessary evils which the motorist is bound to face sooner or later. When the rear springs, body or spare tires are in the way, it is often a big problem to raise the jack after it is placed either on the car or the road without soiling the clothes. The National Pneumatic Jack is operated by air pressure, forced through a long flexible tube by either an ordinary hand or power pump. It is claimed that the air pressure will hold up a car for at least several hours, and usually several days. A mechanical lock is provided to hold up car for storage. The makers cover it by a liberal guarantee and will send it for a 10 days free trial.

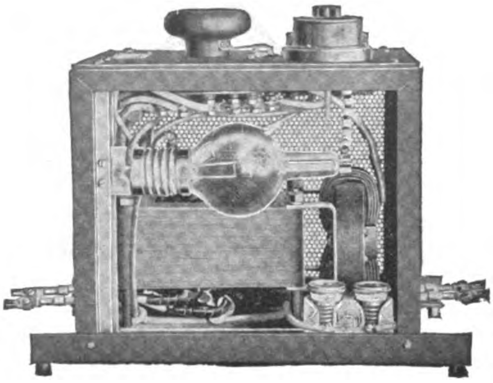


Manufactured by National Motor Supply Co., Cleveland, O. Price, $6.

Victrolene is a scientifically compounded cleaner and polisher for automobiles. The manufacturers claim that it will remove all tar and road oil and restore the finish of the car to its original luster; also that it will remove any rust that is on the nickel parts of the car. It may also be used to clean the leather upholstery and keep it soft and pliable.



Manufactured by Victrolene Co., 39 Pearl St., Boston. Prices from 25 cents for half pint can to $3 for one gallon can.

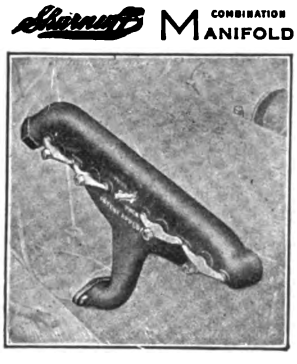


The Tungar Rectifier solves the problem of converting this supply of alternating current into direct current, for alternating current cannot be used for charging direct. This device consists of a rectifier tube, rheostat, switch and ammeter mounted on and in a sheet iron fireproof box, which may be bolted to the wall in any convenient place. The outfit has a capacity of six amperes and 75 volts and may be used for charging from one to 10 three-cell storage batteries at one time, from 115 volt current source. Two leads from the upper part of the rectifier box are connected with the alternating current, while the two lower are connected with the storage batteries to be charged. When the switch is turned on the current flows through the batteries, the rectifier tube need not be shaken to start the flow. If for any reason the source of current should fail the batteries cannot discharge through the rectifier, but will continue charging as soon as the current supply begins again. The device comes complete and ready to attach, the box is amply ventilated to take away the generated heat, compactly made and neatly finished.

Manufactured by the General Electric Co., Schenectady, N. Y. Price quoted at request.

The Shurnuff Combination Manifold is a one-piece casting combining the intake and exhaust, being cast integral and so constructed as to allow the exhausted or fired gases to pass over the intake in such a manner that the incoming vapor is properly mixed and dried before entering the cylinders, thus insuring a smoother running and more powerful engine at all speeds and a saving of fuel.

Its efficiency in thoroughly vaporizing the mixture makes it possible to utilize the low grade gasolines, that have more heat units than the higher grades, which fact is responsible for the increased power, faster pick up and the ease in starting that results from the use of the combination manifold.

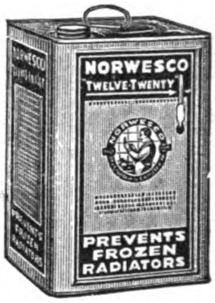


It is designed for the Ford engine and solves the problem that has been confronting Ford owners for some time of how to properly utilize the low grade fuels they are now obliged to buy and obtain greater efficiency from their motors.

Manufactured by the Shurnuff Manufacturing Co., St. Louis, Mo. Distributed by the Zinke Co., Chicago, Ill. Retail price complete, $9; west of Rockies, $10; in Canada, $12.50.

Norwesco "Twelve-Twenty" does away with all guess work in connection with radiator protection. No longer need the motorist wonder whether his non-freeze is strong enough every time a cold snap comes. He knows his radiator is absolutely safe down to 20 degrees below zero. Any one who has put in a messy half hour measuring and compounding a non-freeze mixture will appreciate "Twelve-Twenty."

The solution is made with a specific gravity of 1220, hence its name. If evaporation or leakage causes changes in the solution the hydrometer discloses that fact and a weak solution may then be restored to standard strength by the addition of more of this liquid. If the test shows undue strength, dilution with water corrects the defects. Thus the motorist may test his non-freeze solution as he does his tires or battery and the close check he can keep on the solution should go a long way towards reducing last winter's record of frozen radiators.



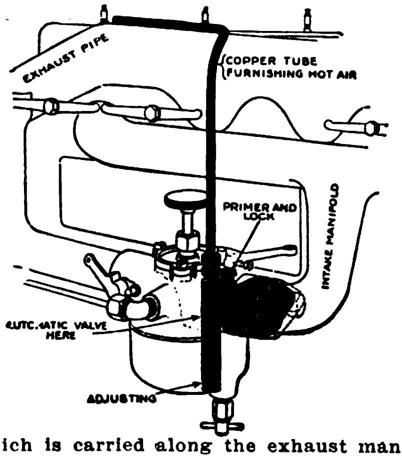
Manufactured by the Northwestern Chemical Co., Marietta, O. "Twelve-Twenty" is sold in three sized containers. One gallon cans, $1.25; three gallon cans, $1.15 per gallon, and five gallon cans, $1 per gallon.

The Niswander Rim Remover is a practical and handy tool for removing and replacing the demountable rim in automobile tires. The contracting and expanding is done by right and left hand threaded rods operated by a hand wheel, which gives an even and steady pull, contracting the rim anywhere from one to four inches, and the rim hooks, together with the rim braces, are so constructed that the harder the pull the tighter they grip the rim in either operation. The rim hooks are made of a good grade of spring steel and will, therefore, adjust themselves to any width rim. The tool weighs two and a half pounds and folds to a length of nine inches, making it possible to store it in the tool box.

NISWANDER RIM REMOVER

Manufactured by the Niswander Manufacturing Co., Quincy, Ill. Price, $3.50.

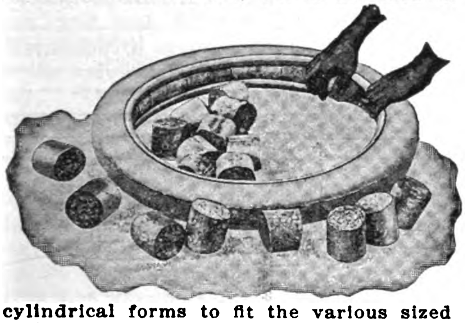
National Mix-O-Lock. A combination auxiliary air mixer, a priming device and carburetor lock is introduced under the name Mix-O-Lock. This device consists of a gasket shaped casting which fits between the carburetor and manifold. Leading to the gasket is a long copper tube, which is carried along the exhaust manifold and through which hot air is drawn into the manifold. The amount of air may be adjusted for the best running. Fitted upon the top of the gasket is a primer plug, and when the plug is removed the excess air which is admitted effectually prevents the starting of the engine until the plug is returned.



The manufacturers claim a gasoline saving of from 25 to 50 per cent. when this device is used, owing to the more efficient combustion of gasoline and a better mixture.

Manufactured by the National Motor Supply Co., Painesville, O. Price, $2.

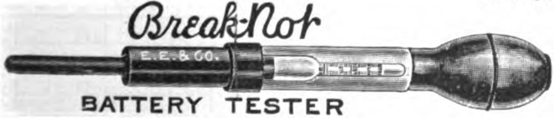
National Rubber Tire Filler takes the place of air in the tire, doing away with the inner tube, thus making punctures, rim cuts and blow outs impossible. It is made in the best quality rubber, cut into small particles and vulcanized together in such a manner that the makers claim it will produce all the resiliency and easy riding qualities of air. It is not melted and run into the tire, but is moulded in cylindrical forms to fit the various sized casings, and is placed in the casings in lengths, after which the casing is pressed onto the rim with special tools provided for the purpose, giving the same pressure as a casing well inflated with air. When the casing wears out the filler can be removed and replaced in new casings.



Manufactured by the National Rubber Filler Co., Midlothian, Tex. Price quoted at request .

The "Break-Not" Storage Battery Tester shows at a glance whether the battery is empty — half discharged — or fully charged. More than half of the instrument is made of red rubber, which eliminates breakage to a great extent. The instrument is guaranteed accurate and the scale is clearly and plainly marked.

Manufactured by E. Edelmann & Co., 119 W. 42nd St., New York City, N. Y. Price, complete in mailing tube, $1.



The Ever Safe Emergency Brake Shoes for Fords eliminates the drag on the brakes by allowing the expander to always lay flat with the jaws of the shoe, thus saving gas and oil. It is adjustable to the drum by enlarging the diameter of the shoe itself. By springing the jaws to one side, washers may be added or removed to take up for the wear of lining or drum, thereby allowing the expander or cam to lay flat with the jaws and a much longer travel of expander at all times, leaving the shoe suspended and contracted to its smallest diameter. It is easily installed without the drilling of holes and it takes the place of the regular cast iron brake shoe.

Manufactured by the Never Break Products Co., Bangor, Pa. Price quoted at request.

Laminum consists of a number of sheets of brass .002 or .003 of an inch in thickness, firmly held together by a metallic binder. The appearance is that of a solid piece, yet each sheet may be peeled off, leaving the thickness slightly less than before. It may be purchased in sheets to be cut to any size, or made up into the shape of bearing shims. After the leaf has been peeled off the resulting surface is said to be absolutely smooth, without grain or grit of asy kind. The advantages claimed for this type of shimming material are that it is solid, offering no surface for grit to adhere to and that necessary adjustment may be obtained without filing, leaving the surface smooth and free.

LAMINUM
MATERIAL SHIMS
PATENTED IN U.S.A. AND ALL FOREIGN COUNTRIES
STOCK SHEETS 6" WIDE BY 36" LONG

Manufactured by Laminated Shim Co., Inc., Canal St., New York, N. Y. Price quoted at request.

Pyramid Brushes are made in about 300 different sizes for the various starting and lighting systems on the market. These brushes have been developed in co-operation with the starter manufacturers in order to get a brush which would meet the requirements of each particular equipment. This means that when you purchase a Pyramid Brush you are getting the same standard brush that was designed for the lighting system of your car.

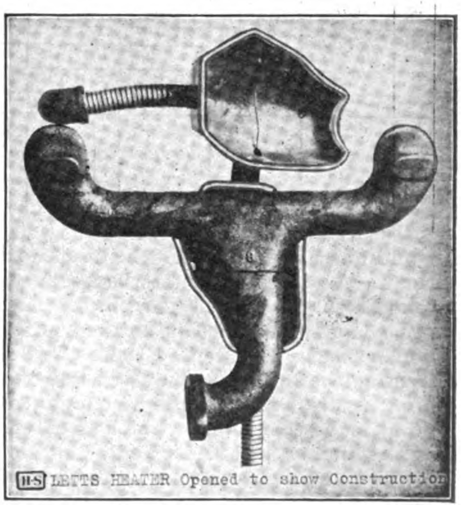
No. 20 ASSORTMENT
PYRAMID BRUSHES
AUTOMOBILE STARTING MOTORS & LIGHTING GENERATORS
PYRAMID BRUSHES
PYRAMID BRUSHES

Manufactured by the National Carbon Co., Inc., Cleveland, O. Price quoted at request.

Cuno Auto Cigar Lighter. The electric cigar lighter fills a much needed want on the motor car. The Cuno Auto Cigar Lighter is simple, efficient and reliable. The burner tip is made of heavy wire and will last indefinitely. It is equipped with six foot cord that automatically rewinds after being pulled out for use. It is finished in nickel and mounted upon the dash by drilling a hole 25/32 of an inch in diameter and inserting the neck from the rear of the dash and tightening nut. A resistance coil is furnished for use with cigar lighter on cars having either 12, 18 or 24 volt batteries. Connecting the battery wire to one end of the coil, connecting other end of screw on round fiber disc on side of the lighter and connecting the other screw to ground makes lighter ready for use.

Manufactured by the Cuno Engineering Corporation, Meriden, Conn. Price quoted at request.

Letts Manifold Heater. This device is intended to counteract the poor qualities of low grade fuel and to increase the mileage obtainable from it. In fact, it is guaranteed to afford an increase of from 20 to 40 per cent. per gallon. It differs from other types in that it is a two-unit type, instead of being cast integral with the manifold intake upon which it acts. It takes its heat from the exhaust and breaks up the globules of gasoline into a thorough vapor, making for instant combustion and minimum carbonization. A feature of the device is that it is in two parts, which makes it easy to attach or detach and gives the owner opportunity to clean it out at necessary periods without difficulty. The cleaning feature is valuable, because, due to the nature of manifold heater castings, carbon collects on the walls and interferes with carburetion. The maker advises that the device is equally serviceable in warm or hot climates, where considerable trouble frequently arises through the water in the radiator boiling. The Letts device maintains regular and quick firing and in that way insures a comparative and desirable coolness in the power plant.



Made by the Hill-Smith Metal Goods Co., 88 Pearl St., Boston, Mass. Retail price, $6.

MONTHLY SALES AND RECAPITULATION YEAR 19____

	January		February		March		April		May		June		Total	
	Sales	Cost	Sales	Cost	Sales	Cost	Sales	Cost	Sales	Cost	Sales	Cost	Sales	Cost
Auto Dept.														
Truck Dept.														
Tractor Dept.														
Accessory Dept.														
Repair Dept.														
Livery Dept.														
Total Sales														
Total Cost														
Gross Profit														
% Gross Profit														
Expenses														
% Expense														
Net Profit														
% Net Profit														
Memorandum of Sales	Cash	Charge	Cash	Charge	Cash	Charge	Cash	Charge	Cash	Charge	Cash	Charge	Cash	Charge

FORM NO. 5

(Continued from Page 21.)

figures will be taken from the "Daily Sales Record," form No. 3. Both columns will be totaled and entered on the lines marked "Total Sales" and "Total Costs." On the line marked "Gross Profit" will be entered the difference between the total sales and the total cost. By dividing the gross profit figure by the total sales figure you will get your percentage of gross profit and this figure will then be entered on the line marked "Per Cent. Gross Profit." On the line marked "Expense" will be entered the total expense for the month, as shown by the "Expense" form No. 4. Again dividing this figure by the total sales you get the percentage of expense and this figure is entered on the line marked "Per Cent. Expense." Subtracting the total expense from the gross profit figure you have the amount of net profit made that month, which is entered on the line marked "Net Profit," and then dividing this figure by the total sales you have your percentage of net profit. On the line marked "Memorandum of Sales" is entered the total cash and charge sales for the month.

With form No. 6, known as the "Daily Record of Cash, Accounts and Notes Receivable," a record is kept of the cash balance on hand, the total amount of all accounts receivable, also of notes receivable. Under the heading "Balance Cash on Hand" will be entered on the first line the amount of cash on hand at the opening of this system. Under the heading of "Cash Sales" is entered the amount of cash sales for the day, and under the heading "Amount Received on Accounts" is entered the total amount received on accounts receivable that day and the total of these two figures is then entered in the column headed "Total Cash Received." The total of all cash disbursements is entered in the column headed "Cash Disbursements," and under the heading "Bank Deposit" is entered the amount deposited in the bank that day. Adding the total cash received that day to the balance cash on hand for the preceding day and subtracting the amount of cash disbursements and the bank deposit you have the amount of cash on hand at the close of the day.

Under the heading "Accounts Receivable" in the column headed "Charge Sales" is entered the amount of charge sales for the day and in the column headed "Received on Accounts" is entered all credits received that day. At the start of this system you will take an inventory of your accounts receivable and enter the total in the column headed "Balance Receivable" on the first line. Then adding the charge sales to the balance receivable and subtracting the amount received on accounts you have the balance receivable at the close of each day.

Under the heading "Notes Receivable" a record of all notes is to be kept. Under this heading columns are provided for the entering of the date the note is given, the name of the giver, the amount and the date due. When the note is paid the date is entered under the heading "Date Paid," also the interest charge will be entered under the heading "Interest."

Form No. 7 is an "Invoice Register" and provides for keeping a record of all invoices and shows the total amount of all

DAILY RECORD OF CASH, ACCOUNTS RECEIVABLE AND NOTES RECEIVABLE MONTH OF 19__

Date	Daily Cash Balance						Accounts Receivable			Notes Receivable					
	Cash Sales	Rec'd on Acc'ts	Total Cash Rec'd	Cash Disbursements	Bank Deposit	Balance Cash on Hand	Charge Sales	Rec'd on Acc'ts	Balance Receivable	Date	Party	Amt	Due	Date Paid	Interest
Inventory															

FORM NO. 6

INVOICE REGISTER YEAR 19____

Date	Name	Invoice Number	Gross Am't	Date Due	Terms	Date Paid	Discount	Net Am't	Total Invoices To Day	Total Invoices Paid Today	Balance Payable

FORM NO. 7

CHECK REGISTER YEAR 19 ______

Date	In Favor of	Invoice Number	Gross Am't	Discount	Other Reductions	Net Am't	Number of Check	Total Checks To day	Deposits		Balance in Bank
									Date	Am't	
				FO	RM NO.	8					

accounts payable. As soon as an invoice is received and has been O. K. it is entered upon this form, entering the date of the invoice, name of the manufacturer, the invoice number, the gross amount and the date due and terms. When the invoice is paid the date on which it is paid is entered, the amount of the discount and the net amount of the invoice. At the close of the day you will total the amount of invoices entered that day and enter the total in the column headed "Total Invoices Today." You will also total the amount of invoices paid and enter the total in the column headed "Total Invoices Paid Today." In totaling the amount of invoices paid you will always use the gross amount of the invoices paid. Adding the total of all invoices today to the balance payable for the preceding day and subtracting the total amount paid you have the balance payable at the close of each day. From this form you know just how your accounts stand.

Form No. 8 provides for keeping an accurate record of all checks issued. On this form you enter the date the check is issued, the name of the person in whose favor it is drawn, if in payment of an invoice the number of the invoice is entered, the gross amount, the discount, other reductions, the net amount and the number of the check. At the close of the day you will total the amount of all checks issued that day and enter the total in the column headed "Total Checks Today." Under the heading "Bank Deposits" will be entered all deposits. Adding the amount of deposits to the balance in bank for the preceding day and subtracting the total of all checks issued that day you have the balance cash in bank at the close of each day.

Form No. 9 is the "Labor Ticket" and is used in the repair department. A separate ticket is made out for every job, entering the number of hours put in, the kind of labor, the workman, the rate per hour and the total labor charge. If any accessories are used they will be entered under the heading "Accessories" and the price entered in the column headed "Amount" and then the total charge will be entered in the last column.

When accessories are used the workman will go to the accessory department and call for the articles needed and the accessory clerk will make out a sales slip charging the owner of the car with the accessories and marking on the slip the name of the workman receiving them. This sales slip will go to the office the same as any of the other sales slips and the accessory department will receive credit for the sale. The "Repair Department" will receive credit only for the labor charge and not receive credit for the amount of accessories used. When the labor ticket comes into the office the two tickets will be compared and see that all accessories used have been charged.

Now from these records the dealer knows just how each department is progressing. His records show him the total sales for each department and he knows whether the department is making or losing him money. From his stock record cards he can figure the amount of stock he should have on hand and at any time he may take a physical inventory of any article to see that all sales are being turned in as they should be. He knows the condition of his accounts payable and receivable, also of his bank account. In fact this system keeps before him constantly all the important facts and figures of his business, enabling him to have efficient control of the business.

LABOR TICKET

Charge to ______________ Date ______
Car ______

Hours	Kind of Labor	Workman	Rate	Am't	Accessories	Amt	Total
			FO	RM NO.	9		

I. H. Mills has resigned from the Westinghouse Electric and Manufacturing Co., East Pittsburgh, to become superintendent of the Sperry Gyroscope Co., Brooklyn, N. Y. For the past 23 years Mr. Mills has been associated with the Westinghouse company. He started first as a machine operator and finally became superintendent of the small industrial motor department.

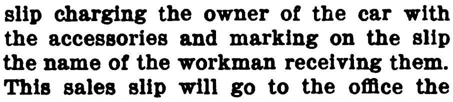
Frank A. Sharpe has been appointed district manager for the Thermoid Rubber Co., Trenton, N. J. His headquarters will be in the Kresge building, Detroit.

Capt. Charles E. Speaks, at present in France, has been promoted to be a major in the Quartermaster Department. Before entering the army he was manager of truck tire sales for the Firestone Tire and Rubber Co., Akron, O.

R. S. McLaughlin has been elected a director and member of the executive committee of the General Motors Corporation. He is president of the McLaughlin Motor Car Co., Ltd., Toronto.

L. C. Reynolds has assumed the duties of manager of the engine factory of the General Motors Co. in Detroit. He was formerly associated with the Oakland Motor Car Co., Pontiac, Mich.

A dealer in Providence, R. I., who had been seriously inconvenienced in his business through lack of switching facilities in the railroad yard there, decided that he would try one of his old Dodge cars as a substitute for a locomotive in moving the freight cars about. The car had seen more than 20,000 miles of service, yet it moved the 50,000 pound freight cars about with comparative ease, "kicking" them up to the platform where they could be unloaded.



J. P. Adams, at the annual meeting of the Peterson-Culp Gearless Steam Auto Co., was re-elected president. L. Leitner was elected secretary and treasurer. He was formerly consulting engineer for the company. The company plans to build a factory in Denver and to produce both passenger cars and trucks.

F. E. Pierce, who was formerly advertising manager of the Anderson Electric Car Co., Detroit, has been appointed district manager for the Elwell-Parker Electric Co., manufacturer of industrial trucks and tractors. His headquarters are at Detroit. The company's factories are located in Detroit and Cleveland.

Roger J. Gilmore, who has been vice president of the Packard Motor Car Co. of New York, has been elected president of the company, succeeding Emlen S. Hare, who has been elected executive vice president of the parent company.

H. L. Dunn is now located at Moline, Ill., where he is associated with the Moline Plow Co., recently acquired by John N. Willys. He was formerly assistant purchasing agent of the Willys-Overland Co., Toledo.

H. W. Simpson has been appointed an assistant engineer for Henry Ford & Son, Dearborn, Mich. He was formerly inspector of aviation engines, Signal Corps, Detroit.

NEW BUSINESS CONCERNS, GARAGES AND AGENCIES

The Month's Record of Garages, Agencies, Branches, Service Stations and Repair Shops

FACTORIES, GARAGES AND REPAIR SHOPS.

Redwood City, Cal.; W. H. Watson has opened the Park Garage, located at Main and Cassie streets.

San Francisco, Cal.; Marshall Garage, 1419 Pacific street, has installed a Goodyear service station.

San Francisco, Cal.; Fred Regalia has opened a repair shop at 15 Duboe avenue.

San Mateo, Cal.; J. R. Gibson has opened a vulcanizing shop and tire store at 51 B street.

Scoita, Cal.; W. H. McIntyre has opened the Scotia Garage. He will do repairing and conduct a service station.

Bushnell, Ill.; James J. Ball is the new proprietor of the Packard Garage.

Chicago, Ill.; The Board of Trade has opened for business at Sherman street. The garage is built to accommodate more than 600 cars. It is steel construction and absolutely fireproof. William L. Heptig is president, P. J. Ryan is vice president and will have charge of the garage work. J. M. Allen is general manager.

Iowa City, Ia.; A. C. Thormann has opened his new place of business, having taken over the Knease & Sons' Garage. He will also deal in accessories and buy and sell second hand Fords.

Washington, Ia.; The Star livery barn is to be rebuilt into a garage for R. E. Schulty, who sells the Overland line.

Arkansas City, Kan.; Vere Hollenbeck is planning to erect a new garage of cement blocks on South Summit street.

Arkansas City, Kan.; E. G. Collins is erecting a new garage.

Eldorado, Kan.; The Midland Refining Co. has opened a new filling station on South Main street.

Great Bend, Kan.; Leo Kern has opened a repair shop for Ford cars.

Holland, Kan.; Joe Hemmy has opened a new repair shop in the Babcock blacksmith shop under the name of the Grand Leader Garage.

Litchfield, Mich.; The Little Better Service Garage has opened its new building.

Marion, Kan.; Al Fishburn is building a new garage.

Marion, Kan.; J. C. Thomas has remodeled his building into a modern garage. Harry Minton is managing the business.

Sylvia, Kan.; Fred E. Barlow has leased the L. R. Cook Garage and will repair and store automobiles.

Huntsville, Mo.; Claud Linn has established a garage.

Savannah, Mo.; Bowman Brothers are erecting a new garage.

Belgrade, Neb.; Charles Eggleston has taken charge of the Andrews Garage.

Berlin, Neb.; The Otoe City Garage has opened for business. It is under the management of Jack Brown and John Clark.

Decatur, Neb.; Walter Peterson has opened an automobile repair shop.

Friend, Neb.; Kahn Brothers are now the owners of the Romsdale Garage.

Franklin, Neb.; The Maxwell Garage has opened for business.

Newark, N. J.; James R. Rust has leased the garage at 196 Newark street. The garage has a capacity for 40 cars.

Brooklyn, N. Y.; John J. Dunnigan is building a one-story garage at 238-240-242 Throop avenue. It will be of brick and fireproof.

New York, N. Y.; The Realty Associates is erecting a one-story brick garage on the corner of Broadway and Rutledge street.

Jefferson, N. C.; The People's Garage has opened for business. J. J. Jewett is manager.

Cambridge, O.; The Guernsey Garage has opened for business.

Henryetta, Okla.; Mitchell & Swaffer have opened a repair department.

Elk City, Okla.; Lloyd and Ira Meed are erecting a new garage.

McAlester, Okla.; Denty & Jackson have opened a new vulcanizing and tire repair shop.

Portland, Ore.; Austin & McVie have opened a truck and repair shop at 210 Jefferson street.

Portland, Ore.; W. A. Kuhlman has purchased the Murraymead Garage at 717 Hawthorne avenue and has added a complete line of passenger car and motor truck accessories.

Tulsa, Okla.; The Purdy Motor Co. will erect a $2000 filling station.

Philadelphia, Pa.; American Insulation Co. is erecting a garage at 1600 Arch street.

Philadelphia, Pa.; Dill & Collins Co. is building a garage to cost $18,000 at Tioga and Brahant streets.

Philadelphia, Pa.; J. D. Fratheringham is erecting a garage at Pomona and Foulkrod street.

Philadelphia, Pa.; John S. Gustine, Jr., is building a stone garage to cost $2400 at 6438 Woodbine avenue.

Philadelphia, Pa.; J. R. Keim & Co. will build an addition to cost $1500 to the garage. The garage is located on Allegheny avenue and Hancock street.

Philadelphia, Pa.; The Northern Liberties Realty Co. will build a garage at 522 North Third street on a site 100 by 108 feet.

Philadelphia, Pa.; H. H. Yerger is erecting a $3000 garage at Germantown avenue and Luzerne street.

Brownwood, Tex.; S. Z. Park is erecting a new garage.

Del Rio, Tex.; A. Madison is erecting a new garage.

Eagle Pass, Tex.; F. L. Sweet & Co. have leased the Star Garage from Messrs. Boardman and will conduct a service station and machine shop.

Everett, Wash.; B. & W. Auto Co. has opened a repair shop at 2806 Wetmore avenue.

Spokane, Wash.; C. W. Twitchell and William Dickinson have opened an automobile electrical repair shop at W. 1123 Sprague avenue.

Spokane, Wash.; F. A. Williams has opened one of the finest garages in the city at 807 First avenue.

Fond du Lac, Wis.; The Fond du Lac Motor and Welding Co., 210-212 South Main street, has organized and will specialize in motor car repair, general machine work, welding and cutting processes. John E. Evans is one of the organizers.

Marshfield, Wis.; Kuethe & Kuehl are operating a repair shop and commercial machine works, having purchased a two-story building, and will make it ready for occupancy in the spring.

AGENCIES, DEALERS AND SERVICE STATIONS.

Ft. Smith, Ark.; The Southern Motor Sales Co. has taken the agency for the products of the Chicago Pneumatic Tool Co.

Los Angeles, Cal.; Smith Brothers have been appointed distributors in Southern California for the Cleveland tractors.

San Francisco, Cal.; Charles Vories has opened a shop at Pacific avenue and Polk street and will specialize in repairing Oldsmobiles.

San Francisco Cal.; W. E. Wallace and M. H. Cooper have established a light service station at 1235 Van Ness avenue.

Ventura, Cal.; Savard & Harman have taken the agency for the Willard Storage Battery and are located at 2806 Wetmore avenue.

Chicago, Ill.; The Rubber Preserving Co. has established sales offices at 752 Otis building. The company manufactures an article called "Kepuruber," a liquid, to prevent the deterioration of tires and other rubber articles.

Clinton, Ill.; Forbes Motor Sales Co. has taken the Inter-State tractor agency.

San Jose, Ill.; George B. Weimer has taken the agency for the Inter-State tractor.

Shelbyville, Ind.; Markley-Myers Auto Co. has opened for business. The company has the agency for the Gould storage battery. The company will carry a complete line of all accessories of the latest.

Altoona, Kan.; W. E. Clayton has opened a Ford accessory shop. He will also conduct a service station.

Eldorado, Kan.; Frank Loeser of the Loeser Motor Co. has purchased the tire business of the Varnum Tire Service and will conduct this new business along with his regular line.

Goodland, Kan.; The Golden Belt Garage has taken the agency for the Willard storage battery and established it in a service station in the garage.

Iola, Kan.; The Miller Oil Co. will erect a service station.

Newton, Kan.; Noah Kornhaus has opened a vulcanizing plant.

Louisville, Ky.; The Callahan-Whiteside Motor Co., Fourth and York streets, will handle the Auto car.

Louisville, Ky.; Kentucky Master Truck Co. has secured the agency for the Master truck and has established sales rooms at 628 South Third street.

Louisville, Ky.; Edward M. Riedling, 724 East Market street, has obtained the agency for Winther trucks.

Grand Rapids, Mich.; F. F. Wood Motor Co. has installed a truck tire and service station at 236-8 Ottawa avenue, Northwest.

Detroit, Mich.; United Motors Service, Inc., will open a branch in Seattle for handling the products and give service for the Dayton Engineering Laboratory Co., the Remy Electric Co. and the Klaxon Co.

Kalamazoo, Mich.; Stevens-Buick Sales Co. is now opened for business at 402-404 East South street. In addition to sales and display departments there is a machine shop and garage space.

Boston, Mass.; New England Velie Co. has opened a large service station.

Worcester, Mass.; Gardner Auto Co. has opened for business. C. L. Day is manager.

Kansas City, Mo.; The Auto Theft Signal Sales Co. has opened a branch.

Kansas City, Mo.; F. M. Lale & Co. have leased the store room at 121 East 18th street. They are distributors of reinforced tires.

St. Louis, Mo.; The Auto Theft Signal Sales Co. has opened a branch in Kansas City.

St. Louis, Mo.; Genco Light Co. has been organized by the Wilson Motor Car Co. to distribute the Genco farm light.

Savannah, Mo.; E. L. Eads has opened an automobile accessory shop on the west side.

St. Louis, Mo.; Imperial Tire Co. has opened at 19th and Lynch streets. The firm handles Randle and Columbia tires.

St. Louis, Mo.; The Tractor Sales Co. has opened a sales room at 2810 Olive street. The company are distributors for the Leader farm tractor.

Raleigh, N. C.; The Stewart Truck Sales Co. has opened a new sales room. R. C. Clinard is manager of the company.

Whiteville, N. C.; The Motor Service Co. has opened for business. The company handles Ford parts and supplies and does general work. Jerome Audrey is manager.

Maudan, N. D.; The Connoly Motor Co. has taken the agency for the Willard storage battery and established it in a service station at 107 Third avenue, northwest.

Newark, N. J.; The Fulton Motor Co. has leased the two-story show room and service station at 124 Washington street.

New York, N. Y.; The Pacific Motor Car Exchange Co. has opened sales rooms at 1687 Broadway for the sale of trucks, tires and used cars.

Cleveland, O.; The Kelly-Springfield Motor Truck Co. has leased the first floor and basement of its structure at 704 Woodland avenue, S. E.

Cleveland, O.; The Simmons Motor Car Co. has moved to larger quarters at 4400 Euclid avenue. The company is the Chandler car distributor in Ohio.

Cincinnati, O.; The Shear Motor Car Co. has secured the distribution of the Denby for Southern Ohio and adjacent territory in Indiana.

Elk City, Okla.; The Willard Service Station is now opened for business.

Corvallis, Ore.; A. G. Held has opened automobile sales rooms and service station.

Corvallis, Ore.; Whiteside & Locke have opened a service station for Fordson tractors and Maxwell trucks.

Independence, Ore.; The Independence Garage, Inc., has added the G. M. C. truck to its line.

Portland, Ore.; The Cook & Gill Co., Inc., has enlarged the sales rooms at 80 North Broadway and added a used car sales department with H. W. Lyon as sales manager. The machine shop and service station are operated by the same company at 409 Davis street and have been equipped for truck and tractor service and repair.

Portland, Ore.; The Francis Motor Car Co., 703 Hawthorne avenue, has been appointed distributor for the Fordson tractor in Multnomah county.

Portland, Ore.; J. A. Freeman & Son have secured the agency for the All-Work tractor.

Portland, Ore.; McLean & Barnard, 840 Sandy road, have opened a department devoted to tractor service.

Portland, Ore.; Paul Staiger & Co. will use the building at Ninth and Couch streets as a storage garage and automobile paint shop.

Philadelphia, Pa.; Bigelow-Willey Co. will handle the Bessemer motor truck at 304 Broad street.

Philadelphia, Pa.; Thornton-Fuller Automobile Co. has taken the agency for Graham Brothers truck. The company also handles Dodge Brothers and Simplex cars.

Memphis, Tenn.; The Automobile Sales Co. has secured the agency for the Cleveland tractor.

Dallas, Tex.; The F. W. Brittson Motors Co. is now located at 2219-21 Commerce street. The company is distributor of Reo cars and trucks. It is a two-story building with floor space of 60 by 100 feet.

Dallas, Tex.; The Tenison, Bair & Frey Co. has taken the agency for the Cleveland tractor.

Dallas, Tex.; The Texas Auto Top and Painting Co. has leased the store room at the corner of Main and Preston streets.

Lynchburg, Va.; R. G. Edgerton & Co. have established their branch at 623 Main street for the purpose of handling the Reo interest in Virginia, a part of West Virginia, Tennessee and North Carolina. W. C. Crews has been appointed manager in charge.

Pullman, Wash.; The Baker Motor Co. has taken the agency for Republic trucks for Whitman county.

Seattle, Wash.; The W. S. Dulmage Motor Co. will distribute Fageol motor trucks.

Seattle, Wash.; Kimball Horne Motor Co. has opened headquarters at 915 East Pike and will handle the Apperson line.

Seattle, Wash.; Pioneer Auto Co. has taken the agency for Case tractors for Western Washington territory.

Spokane, Wash.; The Spokane Auto Co. has the agency for the Plow Man tractor. This part of the business will be in charge of W. E. Land and Guy Crandall is head mechanic.

Tacoma, Wash.; Floyd J. Logan has been appointed distributor for the Vim delivery car.

Tacoma, Wash.; The West Coast Motor Co. is now district distributor for the Perfection asbestos tires.

Appleton, Wis.; Meyer Bradford Co. has taken on the Alma Farm Lite outfit.

Fond du Lac, Wis.; Fond du Lac Motor and Welding Co. has opened for business at 210-212 South Main street. The company organized to specialize in motor car repairs, general machine work, welding and cutting processes.

La Crosse, Wis.; Alex B. Moll has purchased the interest of C. E. Wagner in the latter's garage business.

NEW CONCERNS RECENTLY INCORPORATED

Monthly Record of New Business Houses for which Charters Have Been Issued in the Various States and Classified According To Nature of Business.

NEWLY ORGANIZED MANUFACTURERS OF CARS, TRUCKS AND TRACTORS.

Dover, Del.; Cox Beatall Tractor Co.; $95,000; Solomon Dannenberg, Ernest Rupert, Walter Judson.

Dover, Del.; Liberty Motor Service Association; $25,000; to manufacture and sell automobiles and trucks; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Wilmington, Del.; Cantilever Plane and Motor Co.; $2,000,000; to manufacture airplanes, motors and parts for same.

Chicago, Ill.; Winnebago Tractor Co. of Chicago; $300,000; to manufacture motor vehicles and farm tractors; Nahum C. Bennett, George N. Whitford, William Luxmore.

Detroit, Mich.; Wolverine Tractor Co.; $200,000; W. J. Wickles, Arnold Boutel, W. E. Laur, C. A. Bigelow, W. E. Wood, W. G. Wagenhals, W. F. Austin.

Arapahoe, Neb.; The A. Benjamin Co.; $25,000; to deal in automobiles and tractor business; A. Benjamin, Ray Snyder, Clarence Benjamin.

Greensboro, N. C.; The Southern Truck and Car Corporation; $1,000,000; to manufacture automobile trucks, tractors and bodies; J. A. Norford, H. P. Christie.

Madison, Wis.; Universal Products Co.; $50,000; to manufacture automobile tractors, machinery; Ethel Lee, John L. Newman, John L. Bourke.

ACCESSORIES, EQUIPMENT, SUPPLIES.

Los Angeles, Cal.; Morris Tire Machinery Co.; $57,600; to deal in rubber goods; E. H. Forman, E. Wengler, H. McLaughlin.

Dover, Del.; Liberty Petroleum Co.; $1,000,000; W. F. O'Keege, George C. Steegler. J. H. Dowdell.

Dover, Del.; Perfection Roller Bearing Co.; $300,000; to manufacture roller bearings.

Dover, Del.; Snowden & McSweeney Co.; $3,000,000; to drill and operate for petroleum; F. D. Buck, M. L. Morty, J. C. Forck.

Chicago, Ill.; Best Service Tire and Rubber Co.; $10,000; S. Rosenberg, E. Klinenberg, G. Johnson.

Chicago, Ill.; Chicago Rubber Corporation; $1000; to manufacture and repair automobile tires, accessories and supplies; M. Reinsberg, C. P. Schwartz, U. S. Schwartz.

Chicago, Ill.; H. M. Fisk Tire Manufacturing Co.; $25,000; Harry M. Fisk, H. E. Sooy, Frank Bates.

Chicago, Ill.; Empire Motor Supply Co.; $2000; Jesse A. Joseph, Maurice E. Burr, William C. Greenman.

Chicago, Ill.; Phoenix Tire and Rubber Co.; $2500; Emil Borman, Samuel J. Shaeffer, Albert L. Blumenfeld.

Chicago, Ill.; Square Deal Tire and Rubber Co.; $1000; Myer Myer, Cora S. Aaron, Rose Asato.

Freeport, Ill.; Burns & Sears Rubber Co.; $20,000; to manufacture automobile tires and tubes; F. Burns, A. R. Sears, R. J. Carnahan.

Gary, Ind.; Big Four Tire and Rubber Co. of Indiana; $75,000; to deal in automobile tires; John M. Stinson, Mike Qaksich, Walter Mingerter, Roy D. Davis.

Terre Haute, Ind.; Will-Roll Bearing Co.; $10,000; Ben Heer, William R. Wilson, John H. Swander.

Boston, Mass.; Booth-Langmaid Co.; $50,000; to deal in rubber tires, motor vehicles and accessories; Chase Langmaid, Roy H. Both, Joseph S. Spencer.

Worcester, Mass.; Massachusetts Motors, Inc.; $60,000; to deal in automobiles and accessories; Gertrude Ryan, Simon E. Duffin, John J. Grant.

Newark, N. J.; Sweet & Cottrell, Inc.; $50,000; to manufacture, import, export and generally deal in tires for vehicles of all descriptions; E. F. Sweet, R. H. Cottrell, T. C. Cottrell.

Trenton, N. J.; Truck Tire Sales and Service Co.; J. M. Goodridge, Edith Goodridge, T. M. Balkerstein.

Albany, N. Y.; Record Tire and Manufacturing Co., Inc.; $50,000: James A. Roberts, James H. Devereux, George N. Shafer.

Brooklyn, N. Y.; United States Die Castings Corporation; $150,000; H. Willrich, F. Schippers, F. C. Kraver.

Buffalo, N. Y.; Tire Mileage Renewer Corporation; $10,000; to deal in automobile supplies; K. G. Brett, B. B. Glidden, E. H. Glidden.

Hornell, N. Y.; General Equipment Co.; $50,000; to deal in generating equipment; A. R. Palmer, F. R. Series, H. G. Wenzel.

Ney York, N. Y.; Acorn Insulated Wire Co., Inc.; $300,000; to manufacture insulated wire; F. Prosser, W. R. Prosser, W. George.

New York, N. Y.; Aero-Peds and Kumfort Devices; $55,000; M. MacPherson, H. A. Beatty, S. B. Howard.

New York, N. Y.; Audubon Steam Vulcanizing Co.; $1000; to repair tires; A. Geiger, E. R. Geiger, M. Brandt.

New York, N. Y.; Automotive and Accessory Export Co.; E. E. Sperry, J. D. Eaton, W. J. Baxter.

New York, N. Y.; The Forging Co.; $10,000; to deal in iron and steel, foundry and factory supplies; F. M. Simon, S. J. Handley, C. C. Sanders.

New York, N. Y.; Hudson Tire Co.; $15,000; to manufacture tires; E. O'Beirne, M. Bohan, J. O'Connor.

New York, N. Y.; Independent Rubber Works, Inc.; $10,000; to do a general automobile supply business; S. Gordon, C. Gordon, H. L. Bishop.

New York, N. Y.; Nu-Life Corporation; $1500; to manufacture tires; I. Prussack, G. Portnoy, L. Orlinger.

New York, N. Y.; Peerless Tire Co., Inc.; $1000; C. Pfluger, K. Pfluger, M. Guion.

New York, N. Y.; Perelstrous & Storms Tool Corporation; $12,500; R. E. Breed, D. E. Storms, A. W. Perelstrous.

(Continued on Page 49.)

LEGAL FLASHLIGHTS

COLLISION WITH STREET CAR.

The New York Appellate Division Court holds, Keines vs. New York Rys. Co., 171 N. Y. Supp. 53, that an automobilist on a street too narrow to keep off the street railway tracks, had the right to assume that a street car proceeding in his rear would recognize his right to use the street, and that if on signal of an officer at a crossing he gave warning to vehicles in the rear that he was about to stop, the street car would also stop and avoid a collision. A motorman approaching a crowded intersection behind an automobile must have his car under control, so that he will not run into it if it stops, regardless of the distance between the car and the automobile.

SCOPE OF CHAUFFEUR'S EMPLOYMENT.

In an action against the owner of an automobile for death caused by the car while it was being driven by his chauffeur, the New York Court of Appeals holds, Rose vs. Balfe, 119 N. E. 842, that the prima facie evidence of the owner's responsibility for the accident established by evidence of the ownership of the car and the employment of the chauffeur is overcome by substantial evidence rebutting such responsibility. The owner of the car directed the chauffeur to put it in dead storage, under instructions not to use it without permission. It is held that in such circumstances the chauffeur has no implied authority to violate orders, and without the owner's knowledge or consent to take the car out for the purpose of testing it; and, such act being unauthorized, the owner is not liable for an accident resulting therefrom.

CONDITIONAL SALES—RIGHT TO RESELL.

Under a conditional sale contract of an automobile, making time of payment of the essence of the contract, the seller took possession of the automobile sold, after the buyer's default. The buyer made no reasonably prompt tender of performance. It was held in an action by the buyer to recover damages for the conversion of the car, Magee vs. W. J. Burt Motor Car Co. (Cal.), 174 Pac. 687, that the seller had the right to resell the car, which right was not lost by accepting partial payments after the entire contract became due.

COLLISION WITH STREET CAR.

In an action against a street railroad for compensation for injuries to an automobile driver who attempted to cross a track, the Michigan Supreme Court holds Keichle vs. Detroit United Ry. 168 N. W. 972, that the driver's act in proceeding to cross the track when there was no approaching car within 250 feet, nor within view, did not constitute negligence. His act in turning so as to receive a glancing blow instead of direct impact with a car bearing down on him was not contributory negligence as matter of law. He had the right to assume that if a car were approaching beyond the limits of his view, 250 feet, it would not be operated across the street he was on, one much traveled, at more than 30 miles an hour.

ACCEPTANCE AND RETENTION OF CAR.

In an action for breach of contract in the sale of an automobile by the delivery of a second hand one instead of a new car, where the evidence supported pleas that the plaintiff retained the car after discovering that it was second hand and did not offer to return it, but paid the balance of the purchase price, the Alabama Court of Appeals, Bonds vs. Marsh, 79 So. 631, affirmed a judgment for the defendant.

EVIDENCE AS TO WARRANTY OF CAR.

In an action to recover on a promissory note where one of the defenses is the breach of an alleged warranty in the sale of an automobile, the Illinois Appellate Court holds John Hemwall Automobile Co. vs. Derby, 207 Ill. App. 46, that the question whether such warranty was made is for the jury. Another defense set up was false and fraudulent representations by an agent of the plaintiff. It was held that the questions whether such representations were made by one who was the plaintiff's agent and were acted upon by the defendants to their injury were also for the jury. Judgment for the plaintiff was affirmed.

AGREEMENT FOR RETURN OF CAR IF UNSATISFACTORY.

The Illinois Appellate Court holds Davis vs. Mitchell Automobile Co., 207 Ill. App. 30, that evidence that on delivery of a car, bought under a written contract which provided that if the car was not as represented the deposit would be returned, the agent delivering it to the purchaser said that if the car was not satisfactory it could be returned and the initial payment thereon would be refunded, is admissible, not to vary the contract, but as showing that by receiving the car the purchaser did not admit that it was satisfactory nor that the contract had been performed on seller's part.

CHAUFFEUR'S ASSUMPTION OF RISK OF OBVIOUSLY DEFECTIVE BRAKES.

A complaint in an action by a chauffeur against his employer alleged that in 1916 the defendant employed the plaintiff to operate his car in various parts of Connecticut; that "when the plaintiff entered upon said employment and began to operate said automobile the same was in such a defective condition that it was not only unsafe, but dangerous to use the same in public streets or highways where there was any considerable travel, said condition being due to defective brakes, which were wholly insufficient to enable the plaintiff or any operator to control said automobile, which condition was unknown to the plaintiff, but was well known to the defendant; that while operating the same in and through the town of Cromwell and because of the inability of the plaintiff to control said automobile, caused by the aforesaid defective condition of said automobile, the said automobile struck and seriously injured a female pedestrian; that the plaintiff by reason thereof, although he was wholly innocent, was charged by the State of Connecticut with reckless driving and assault and battery; that he was compelled to and did employ an attorney to defend him and protect his rights, and that he necessarily expended for the fees of his attorney, stenographic fees and transportation, the sum of $169. In addition to this he claimed damages for the humiliation suffered by him on account of his arrest." The Connecticut Supreme Court of Errors holds, Plasikowski vs. Arbus, 103 Atl. 642, that an employer is under no obligation to warn an employee of dangers which are obvious, nor to instruct him in matters which he may fairly be supposed to understand. Nor is it the duty of the master to admonish the servant to be careful, when the servant knew or ought to have known the danger and the importance of using care to avoid it. It must be assumed that one employed as a chauffeur is familiar with the ordinary parts of an automobile and is a competent operator. Any defect in the brakes was as obvious to the plaintiff as to the defendant, and the defendant owed no duty to warn, and the danger of running down a pedestrian because of such defective brakes was an obvious risk which the plaintiff assumed. The defendant was therefore not bound to indemnify him for expenses in defending a prosecution for reckless driving.

REPUBLIC MOTOR TRUCK CO.'S BIG NOTE ISSUE.

The Republic Motor Truck Co., Alma, Mich., has issued first mortgage and collateral trust seven per cent. serial gold notes to the value of $3,000,000, due serially from Nov. 1, 1920, to 1923, which were offered from 99½ and interest, yielding about 7¼ per cent. to 98 and interest, yielding about 7½ per cent.

The issue was to reduce floating indebtedness and afford additional capital for expansion. The notes are secured by a first mortgage on all the fixed assets of the Republic Motor Truck Co., and the pledge of the entire common stock of the Torbensen Axle Co. The statement of the company was that the prospect for future business is bright, as the demand for the products of the companies is limited only by ability to increase manufacturing schedules.

DENBY EXPORT OFFICE OPENED AT NEW YORK.

The Denby Motor Truck Co., Detroit, has established an export office in New York City, which has been placed in charge of G. W. Worden, who until the opening of this office directed the exportations from the main office at Detroit. The business had so much increased and there was so much need of representation nearer the principal shipping port of America that the change was made.

SELDEN BUSINESS GROWS.

The board of directors of the Selden Truck Sales Co. has declared a dividend of five per cent. on the first preferred stock, and a quarterly dividend of two per cent., the latter payable to stockholders of record as of Jan. 2, 1919.

Statement is made that the business of the company continues to increase, the shipments of trucks for use in this country for the month ending Dec. 7 being 28 per cent. larger than any month's shipments made in the last two years. The company is planning a campaign for development of business in this country, the details of which will shortly be announced.

The Dearborn Truck Co., with capital of $5,500,000, to engage in the manufacture of motor trucks, automobiles, etc., has been incorporated at Dover, Del., by C. L. Rimlinger, M. M. Clancy and P. B. Drew.

The Pierce-Arrow Motor Car Co., Buffalo, N. Y., has declared a regular quarterly dividend of two per cent. on preferred stock, payable Jan. 2 to stockholders of record as of Dec. 16.

The Studebaker Corporation has planned to completely reconvert its several plants from war work to passenger car and truck production by March 31.

The General Motors Corporation is rushing the work of converting the Marquette Motor Co.'s plant at Saginaw, Mich., to the construction of tractors.

SOME TRUCK WAR CONTRACTS TO BE COMPLETED.

Because the Postoffice Department has increased the number of power trucks that it proposes to utilize in the collection and distribution of mail from 10,500 to 15,700, there is reason to believe that the contracts made by the War Department, which will eventually turn the trucks over to the Postoffice Department, will be filled by the contractors. These are said to be the Packard Motor Car Co., the Pierce-Arrow Motor Car Co., the Locomobile Co. of America, the Garford Motor Truck Co. and the White Co. The building of these trucks will keep the production departments of these concerns running for varying periods. There is said to be little probability that the War Department will return trucks used by the War Department army in France to this country.

FUEL ADMINISTRATION LIFTS OIL INDUSTRY CONTROL.

Announcement has been made by the United States Fuel Administration that it has asked the oil industry to suspend all voluntary restrictions on crude oil prices and distribution and on refined products. This is regarded as releasing from government supervision all the industry, both crude and refined, which will be permanent unless, according to the statement, "events prove the necessity of again exercising control." The industry is reminded that all licenses now outstanding will remain effective until the President makes proclamation of peace, and that all agreements will continue subject to cancellation or assignment at the request of the fuel administrator. He, however, does not expect to have to exercise this authority.

NO CHANGE IN NASH PRICES.

Announcement is made by President C. W. Nash of the Nash Motors Co., Racine, Wis., that the prices prevailing for Nash trucks will be continued without change until July 1, 1919. These are now: $1650 for the one-ton truck chassis; $2175 for the two-ton truck chassis, and $3250 for the two-ton Nash "Quad" or four-wheel driven truck.

AHLBERG REMADE BEARINGS IN "BENDER SPECIAL."

The utilization of what had been for years regarded as unserviceable and valueless is the foundation of the business of the Ahlberg Bearing Co., Chicago, a concern that restores worn bearings of all kinds so that their service life is practically doubled. These are exchanged for bearings that are useless upon payment of a comparatively small sum, the system of exchange and restoration being continued, so that automobile vehicle owners may obtain what is practically initial efficiency and greatly lengthen the service of their machines for minimum expenditure.

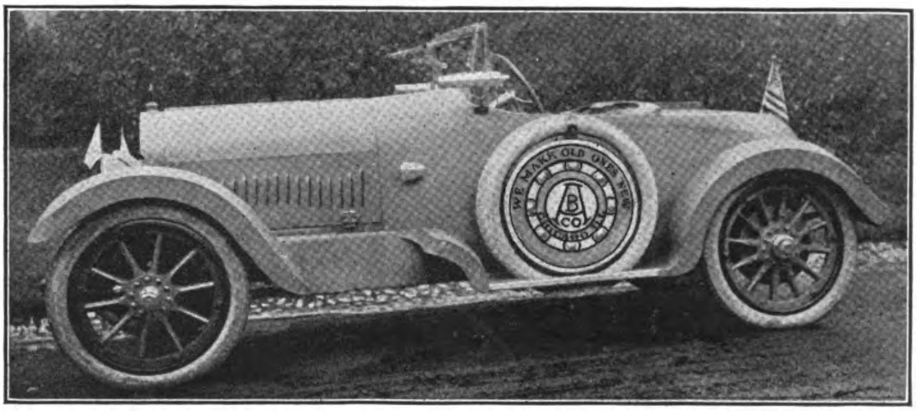
The company has designed what is regarded as one of the most unique passenger cars to be seen in Chicago boulevards that is known as the "Bender Special." This is a roadster that can be driven 70 miles an hour, in which is a Buda four-cylinder engine that is equipped with a high-tension magneto for ignition current. It is equipped with electric lights under the hood and in the tool box and the horn is operated by a foot pedal, as is a fuel supply accelerator. The machine is fitted throughout with Ahlberg remade ball bearings, which demonstrates the mechanical value of the restoration processes of the Ahlberg company.

POWER VEHICLE SHIPMENTS SHOW BIG LOSSES.

The losses through the curtailment of production of the automotive industry are best reflected by the shipments from the factories, which were 6201 carloads in November, as against 18,942 in the same month last year. In October the factories shipped 8214 carloads, as against 21,403 in October of 1917.

GMC PREFERRED STOCK TO BE REDUCED.

The board of directors of the General Motors Corporation has authorized the issue of debenture stock to the value of $150,000,000, and has also determined that the amount of preferred stock outstanding shall be reduced from $100,000,000 to $20,000,000.



The "Bender Special," a Roadster Built at Chicago and Equipped Throughout with Ahlberg Remade Bearings.

MACHINE TOOLS FOR FORD SERVICE STATIONS.

Labor saving machinery and tools for service stations that specialize work on Ford cars and trucks, and for use in the operation of Fordson tractors, is built by the Service Station Equipment Co., Inc., 1201 Cortland street, at Clyburn avenue, Chicago. These machines and tools have been designed for Ford vehicles and Fordson tractors and each have a distinct value in time and labor economy on work that is essential.

SERVICE STATION EQUIPMENT CO. INC.

The Factory of the Service Station Equipment Co., Chicago, Ill.

They include the American combination bearing burning-in and motor test and running-in stand, the American Junior combination bearing burning-in and motor test and running-in stand, American motor test and running-in machine, American bearing burning-in machine, Dixie front system and rear axle repair stand, special bench fixtures and tools, arbor press bushing drivers and ball race tools, arbor presses, portable electric drills, radiator test plugs, tow bars, bending irons, speeders, wrenches, special tools, American tractor lift and unloading devices, tractor supports, tractor piston clamps, tractor connecting rod straightening and aligning devices, American "Fordson" tractor assembly and disassembly stands, Fordson tractor one-man tow bar and "Fordson" tractor speeders and wrenches.

These specialties have been designed and carefully developed for the special uses implied by the names by which they are identified, and each has a utility and economy that recommends it to the service station operator or to the individual owner of a machine. They are intended to make time and labor doubly productive and in this respect increase profits, while the high standard of work that can be done with special tools is certain to attract and retain busness.

Statement is made that all tools and machines are submitted to the equipment departments of the Ford Motor Co. and Henry Ford & Son for inspection, this evidencing the company is certain that its products are practical and desirable. All machinery and tools are guaranteed against defective material and faulty workmanship. Complete information of these specialties is to be found in the latest catalogue of the company, which will be sent to any person making inquiry.

E. M. Benedict of Toledo, O., has been appointed general manager of the Jackson Munitions Co., Jackson, Mich.

McCONNELL REPRESENTS M. & A. M. AT CAPITAL.

R. M. McConnell, formerly assistant cashier of the National Bank of Commerce at Detroit, is now stationed at Washington as representative of the Motor and Accessory Manufacturers, Inc., in such work as is necessary in the interests of members in matters relative to reconstruction policies, especially those pertaining to cancellation of contracts.

His appointment was made by a committee consisting of Charles E. Thompson, president of the Steel Products Co., Cleveland, O., chairman; Christian Girl, president of the Standard Parts Co., Cleveland, and Alexander W. Copland, president of the Detroit Gear and Machine Co., Detroit. The committee was appointed at a recent meeting of the association to direct and determine for it, so far as possible, all matters relating to war adjustments. Mr. McConnell was for several years associated with the Firestone Tire and Rubber Co.

SMALL OVERLAND CARS WILL BE SPECIALIZED.

One of the results of the reconversion of the plant of the Willys-Overland Co., Toledo, O., to vehicle manufacture, will be the production of the small Overland passenger cars, for which design has been perfected, in very large numbers. The machines will be sold for approximately $500, unless there is a change in manufacturing plans, and this price will be possible only through standardization of design and building on a scale never before attempted by the Overland company.

The Williams Foundry and Machine Co., Akron, O., has greatly increased its manufacturing space, facilities and its volume of business. The company specializes in equipment for tire factories and is one of the largest manufacturers of this class of machinery in the world, making machines or tools required for every purpose in tire making and repairing.

BOYNE TRACTOR A NEW TYPE FOUR-WHEEL DRIVE.

The Traction Engine Co., Boyne City, Mich., was organized to build a new type farm tractor designed by J. O. Heinze, who is general manager of the company. The first machine has been built and is now being tested, and statement is made that it has been found to be extremely serviceable and to have several unique features of construction that are exclusive with this tractor.

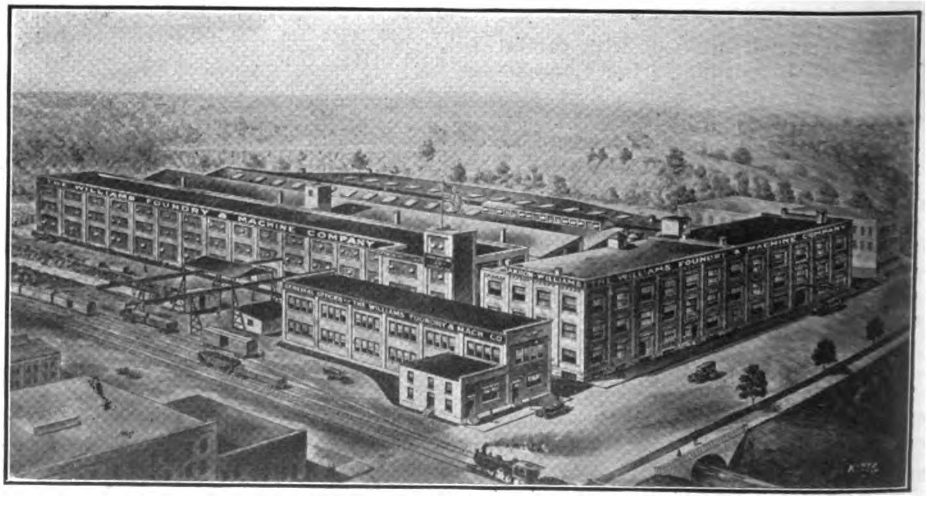
The tractor is driven by all four wheels and the power is transmitted to each of the wheels by chains and sprockets from a common driving shaft. The steering gear is an unusual construction, control of movement being obtained through drums on the driving shaft which, through the differential gearset, apply power to either side of the tractor as desired, according to the direction the driver wishes to turn.

HARRY W. FORD, FORMER SAXON HEAD, DEAD.

Capt. Harry W. Ford, recently discharged as a captain in the Motor Transport Corps, died at New York City a few days since from pneumonia. He was a well known factor for a number of years in the automotive industry. He went from Dayton, O., to Detroit, in 1910, and joined the Chalmers Motor Car Co., and he retired from that concern in 1914 to become president of the Saxon Motor Car Corporation, a company he founded. He resigned from the Saxon corporation in January of this year to become president of the Federal Bond and Mortgage Co.

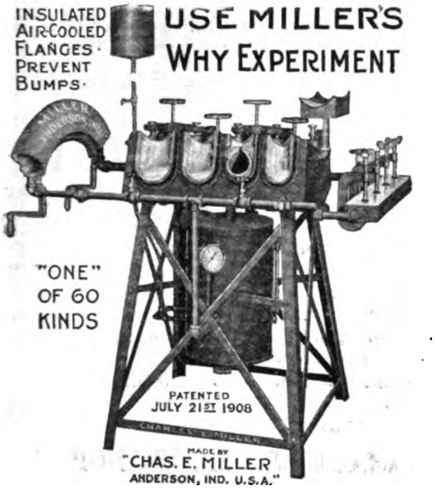
CAPT. W. S. PETTIT KILLED IN ACTION.

Capt. W. S. Pettit, who was advertising manager for the Studebaker Corporation and later was sales manager for the Commerce Motor Car Co., Detroit, well known to the automotive industry and trade, is reported to have been killed in action in the Argonne forest in France 24 hours before the signing of the armistice with the German army representatives.



The Plant of the Williams Foundry and Machine Co., Akron, O., Manufacturer of the Tire Making Machinery and Tools, Which is Claimed to Be the Largest Operator of the Kind in the World.

Miller's Four-Cavity En Bloc Adjustable Vulcanizer is designed to give the repairer a vulcanizer with which work can be done on four tires simultaneously, either of one or four different sizes, affording greater capacity and requiring less space. It is built in one unit, has insulated air cooled flanges and operates without a reducing shell. It may be operated with a steam line, gas or gasoline.


INSULATED AIR-COOLED FLANGES PREVENT BUMPS
USE MILLER'S
WHY EXPERIMENT
"ONE" OF 60 KINDS
PATENTED JULY 21ST 1908
MADE BY "CHAS. E. MILLER ANDERSON, IND. U.S.A."

Manufactured by Charles E. Miller, 1402 Meridian St., Anderson, Ind. Price, steam line, $105; gas, $135, and gasoline, $138.

Blue Ribbon Auto Specialties are 12 in number, and while not mechanical they are none the less necessary, for they are intended to serve a considerable range of purposes, from cleaning the engine cylinders of carbon to cleansing one's hands. The series has been developed by a concern that was established to produce and market a single article of merit, and the success obtained with this impelled adding others as these could be proven by service experience. As the business increased the distribution became nation wide and today the products of this company may be found in the stock of dealers in all parts of the country, and, of course, used by innumerable owners of power vehicles. The Blue Ribbon specialties are regarded as being standards so far as quality is concerned, and this prestige has been gained by general use and by satisfaction. The series includes the following:

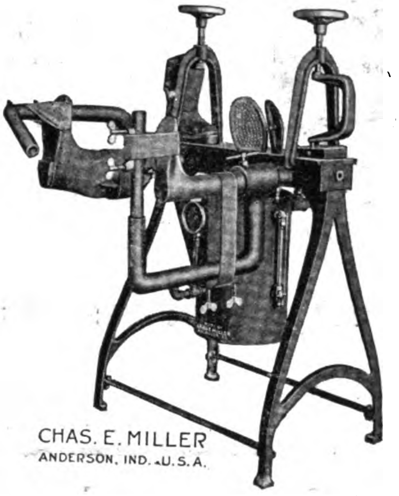
BLUE RIBBON LIQUID RADIATOR CEMENT
BLUE RIBBON LIGHTNING CARBON REMOVER FOR GASOLINE ENGINES
BLUE RIBBON Hold-on Patch

Blue Ribbon Liquid Radiator Cement.
Blue Ribbon Lightning Carbon Remover.
Blue Ribbon Hold-On Patch.
Blue Cream Metal Polish Ribbon.
Blue Ribbon Nickel Polish.
Blue Ribbon Auto Body Gloss and Furniture Polish.
Blue Ribbon Leak Proof Cement.
Blue Ribbon Auto Top and Seat Dressing.
Blue Ribbon Black Gloss Enamel.
Blue Ribbon Oil Soap.
Blue Ribbon Cold Cream Hand Soap.
Blue Ribbon Magneto and Generator Oil.

The uses of the different specialties are suggested by the names, but statement should be made that these have been developed to have exceptional quality, and are guaranteed by the manufacturer and are known by the name that has been established by satisfactory dealings and by satisfied buyers. The company has produced one specialty after another until the series today may be considered complete, each having a distinct use and supplying demands that have arisen with the continued utilization of power vehicles These may be obtained at practically all dealers and jobbers, or may be obtained direct from the International Metal Polish Co., Quill street and Belt railroad, Indianapolis, Ind.

BLUE RIBBON CREAM METAL POLISH
BLUE RIBBON AUTO TOP AND SEAT DRESSING
MANUFACTURERS OF THE FAMOUS BLUE RIBBON POLISHES AND SOAPS

Miller's Improved Rubber Boot and Shoe Repair Equipment has been developed to meet the demand for a vulcanizer with which to repair rubber boots and shoes.



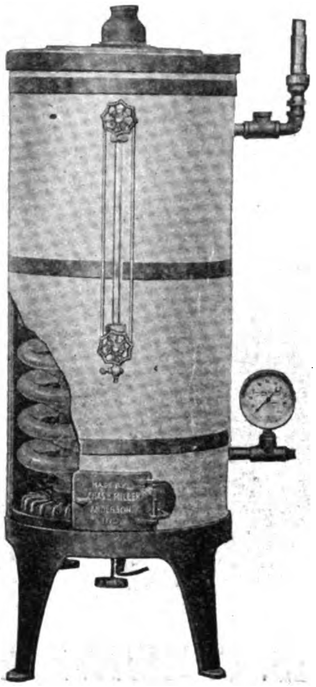
With this unit any necessary repair can be made to a rubber boot or shoe. It is adapted for operation with a steam line.

Manufactured by Charles E. Miller, 1402 Meridian St., Anderson, Ind. Price, steam line, $100; gas, $131, and gasoline, $134.

Shurnuff Combination Manifold is an accessory designed for installation on Ford chassis that greatly improves the control of the machine, especially in winter service, it being a one-piece casting that combines the intake and exhaust manifolds so that the fuel entering the engine cylinders passes through the heated walls of the exhaust manifold before it reaches the combustion chambers. This causes the gasoline to vaporize thoroughly and there is complete combustion and a very high degree of efficiency obtained. The lowest grades of gasoline sold for fuel today will not vaporize unless heated and yet with the Shurnuff manifold the lower qualities can be utilized even better than higher grades, for the low grade gasoline, when vaporized, possesses more heat units than the better grades as measured by specific gravity, and produces greater power for a given volume. Less time is required for warming the cold engines when Shurnuff manifolds are used. This alone is a considerable saving in fuel, and as the manifold will retain heat for a considerable period no "warming" is necessary in cold weather when frequent stops are made.

Manufactured by the Shurnuff Manufacturing Co., St. Louis, Mo. Sales department, the Zinke Co., Chicago, Ill. Price, $9; west of the Rocky mountains, $10, and in Canada, $10.

Miller Water Tube Boilers are built for vulcanizing shops, steam laundries, cleansing, dyeing and pressing works; printing shops, barber shops, etc., or wherever there is need of rapidly generating steam. The boilers will stand pressure of 500 pounds, but the working pressure will ordinarily range from 70 to 100 pounds. This boiler will generate sufficient steam to operate successfully a tube plate 54 by four inches, a three, four, five or six-cavity sectional vulcanizer, a head mold vulcanizer, steam jacketed casing mold and three straight vulcanibers at one time. It is furnished complete with gas or kerosene burner.



Manufactured by Charles E. Miller, 1402 Meridian St., Anderson, Ind. Price, gas burner, $85; kerosene burner, $90.

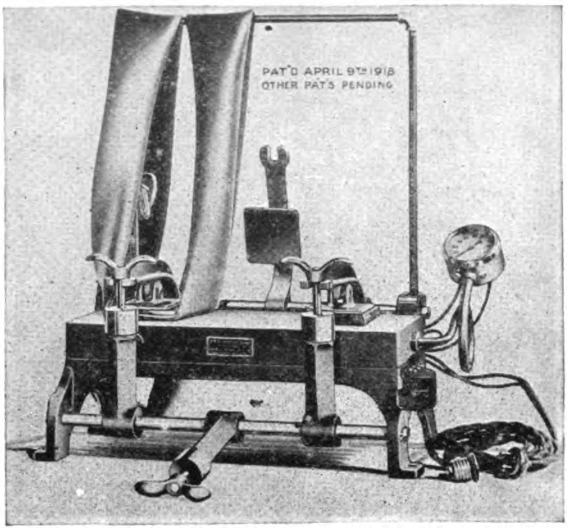
Heintz Electic-Steam Vulcanizer is an electrically heated steam vulcanizer with automatic control, having capacity sufficient for the garage, repair shop, tire shop or the needs of the vehicle fleet owner. The electric heating element is similar to that in an electric flat and heats water in vulcanizer casing until sufficient steam pressure has been obtained. The steam pressure is maintained practically at a stated degree by a magnetic switch that increases or reduces the current flow as the pressure rises or falls, the range of variation not exceeding two pounds a day. The required steam pressure can be generated in 20 minutes. The vulcanizer conforms to the requirements of the insurance companies in that there is no flame. It may be used anywhere by a driver or by inexperienced workers without danger of fire or explosion. The work cannot be overcured as the temperature will not vary. Current may be taken from any lighting circuit and the cost will be from one to two cents an hour, varying with the size of the apparatus and the rate paid for current. These vulcanizers are made in two sizes, for repairing either three or four tubes at a time. Guaranteed by the manufacturer for one year.

PAT'D APRIL 9th 1918 OTHER PATS PENDING

Manufactured by Jas. C. Heintz & Co., 2071 East Ninth St, Cleveland, O.

HEINTZ ELECTRIC STEAM VULCANIZER

DEALERS, REPAIRMEN, GARAGEMEN



The Heintz Automatic Electric-Steam Vulcanizer will add a

MONEY MAKING DEPARTMENT

to your business. THE BUSINESS IS WAITING FOR YOU. Our equipment is adapted to your requirements because—

1. **No danger of fire or explosion.**
2. **It does perfect work.**
3. **Vulcanizes by steam heat.**
4. Heated by electricity from light **socket.**
5. Steam pressure and temperature **automatically** controlled. No attention **required.**
6. No boiler or fireman needed. **No watching** of steam pressure.

Made in Two Sizes

FOR TIRE SHOP, GARAGE OR REPAIR SHOP

Consumes less electricity than an electric flat iron. Capacity larger than you will probably ever require.

The HEINTZ is a practical guaranteed vulcanizer, which proves a big money maker for all who use it.

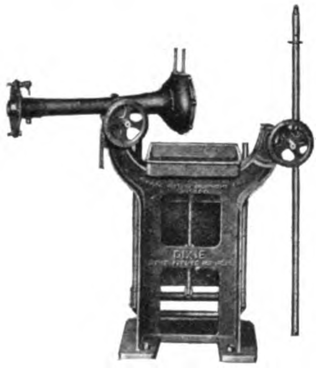
Write Us for Prices and Description Now!

JAS. C. HEINTZ & COMPANY, 2067 East 9th Street, Cleveland, Ohio.

Exclusive Licensees Under Heintz Patents.

CANADIAN DISTRIBUTORS:
Canadian Fairbanks-Morse Co., Montreal, Canada.

JOBBERS—Write for our Proposition.



More Profit for Garage, Repair and Service Station Men

When you equip your shop with time and labor saving machinery and tools, you cut the cost of any job. The saving is profit, the easiest dividends to be earned.

THE "DIXIE" FRONT SYSTEM AND REAR AXLE REPAIR STAND

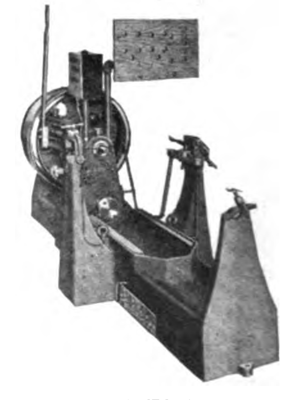
This is a combination overhaul stand equipped with two vises, one turns on a swivel or pivot and the other tips sideways. With this equipment the work can be reached from any position or angle. The result is a good job easily and quickly done. The stand occupies 21 inches of floor space. It can be placed in any location and the service life and utility will continue for years.

The "American" Combination Bearing Burning-in and Motor Test and Running-in Stand for Ford Motors

A shop is not well equipped without it. This equipment has been tested and proven in hundreds of service stations. It does the work, saves the time and adds to the profit. It requires less power to operate than any other machine. It is simple and positive in operation and has distinct advantages that make it the practical and economical equipment for use in any shop.

The "American" Universal Bearing Burnishing and Running-in Machine for Buick, Dodge, Overland, Studebaker, and other makes of motors, will reduce the usual repair expense 50% or more.

We make a full line of "FORDSON" Tractor Repair Shop Equipment.



To the Trade—We specialize in the production of time and labor saving garage, repair and service station equipment. Send today for catalogue No. 5. It lists, illustrates, describes and gives the prices of our complete line. Machinery and tools that will increase the profits and that will bring and hold the business.

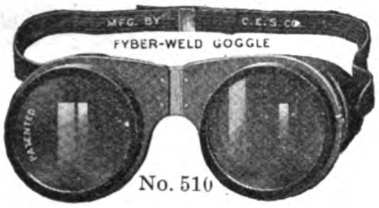
Jobbers—This is the time to specialize in time and labor saving machinery and tools. Our proposition is exceptional. Detailed information at request. It will surprise and interest you.

Service Station Equipment Company, Inc.

1201-11 Cortland Street, Cor. Clybourn Avenue, Chicago, Ill.

Fyber-Weld GOGGLES for Welders

Fitted with "Essentialite" Lenses



No. 510

Frame is made entirely of vulcanized fibre, and in addition to being light in weight is a non-conductor of heat and electricity, is non-inflammable and infusible, is not affected by moisture or perspiration and is easily sterilized and kept sanitary. Has flexible leather center, ventilated side pieces and adjustable elastic headband.

Prices as follows:

No. 510, fitted Ess. lenses, No. 4 shade, for cutting and cover glasses......$3.00 pair
No. 510, fitted Ess. lenses, No. 6 shade, for welding and cover glasses......$3.00 pair
No. 510, fitted with amber, smoked green or deep blue, cesco blue and cover glasses ....$2.50 pair
Extra cover glasses in clear or amber tint.................... .20 pair

"ESSENTIALITE" LENSES

To those of our patrons who are not thoroughly conversant with the real qualities and benefits of **"Essentialite"** lenses, we take pleasure in furnishing the following information. In placing the **"Essentialite"** before the trade, we have, after years of experimenting and research, succeeded in discovering the means of protecting the delicate organism of sight against the destructive Ultra Violet rays. We have demonstrated conclusively that with these lenses we vanquish the so-called "fatigue-weariness" and headaches caused by Ultra Violet and Infra Red rays.

Manufactured By **CHICAGO EYE-SHIELD CO., 2300 Warren Ave., Chicago, ILL.**

FAWSCO AUTOMOBILE FUSES

AUTO FUSES
AUTO FUSES
ASSORTMENT NO

TWO ASSORTMENTS

No.	Contains	Retail Value
1	114 fuses	$11.40
2	240 fuses	21.60

FUSE STOCKS are contained in a neat box as shown; separate carton for each size. Contains 16 sizes, fitting practically every make of car. Quantities are properly proportioned to demand.

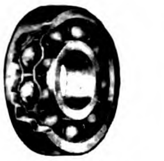
J. H. FAW, INC. **37 Warren St., New York**

CONTENTS

Type		No. 1	No 2
1 AG.	20 amp.	20	40
2 AG.	15 "	10	24
3 AG.	10 "	9	25
	15 "	15	30
	20 "	10	25
4 AG.	20 "	10	20
5 AG.	20 "	8	15
6 AG.	15 "	6	6
6 AF.	20 "	3	6
	25 "	3	6
15 A	Velie	3	5
16 A	Auburn	3	5
17 A	Mitchell	4	10
20 A	Buick	4	7
21 A	Abbott	3	4
22 A	Pullman	3	4

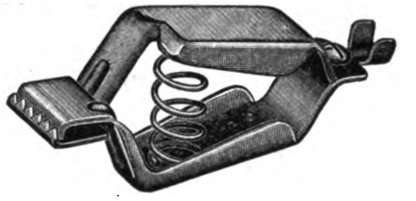
NEW DEPARTURE BALL BEARINGS

Strength
Stamina
Service



The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

UNIVERSAL BATTERY CLIPS



Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals.

No. 21-A—lead plated—1½" spread of jaws.
Sample mailed postpaid for 15c in stamps.
Single Lots, Each 20c. Lots of 10, Each 15c.
Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.

ADAMSON

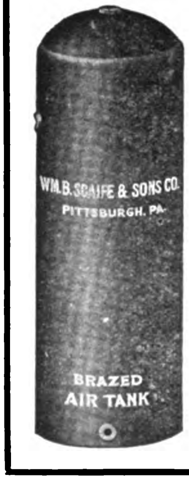
VULCANIZERS

The Only Complete Line

MODEL "E" 5-Minute Vulcanizer repairs tube punctures—Price $1.00 complete.
MODEL "U" repairs tread cuts and abrasions, mends inner tubes—Price $2.00 complete.
MODEL "T" makes ordinary tube repairs—Price complete $1.50.
MODEL "S" for garage use, makes tube repairs up to 12 inches—Price complete $12.00.

Sold by Jobbers and Dealers Everywhere.

ADAMSON MFG. CO., - - - East Palestine, O.



SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

VARNOLA CLEANER
VARNOLA POLISH
CLEANER
POLISH

Varnola

RENEW CAR FINISH PERFECTLY

THEY restore varnish and enamel, on wood and metal, to the original appearance. The Cleaner removes grease, dirt or corrosion from the surfaces and the Polish gives a high lustre that will endure from 30 to 60 days.

A pint can of the Cleaner and a quart can of the Polish will suffice for any size or type of car for six months. The price for the two, sold only in combination, is **$1.50**

JOBBERS AND DEALERS

You know the reasons why other automobile cleaners and polishes do not satisfy. Varnola products are sold with a guarantee of satisfaction. The demand is constantly growing. The sales probabilities are extremely large. Our trade discounts are very liberal. Write for them today

American Manfg. & Supply Company
BOSTON 9 WILTON STREET (Allston District) MASS

REG. U.S. PATENT OFFICE
IRONCLAD
KHAKI TWILLS
GUARANTEED FAST
WEARS LIKE LEATHER

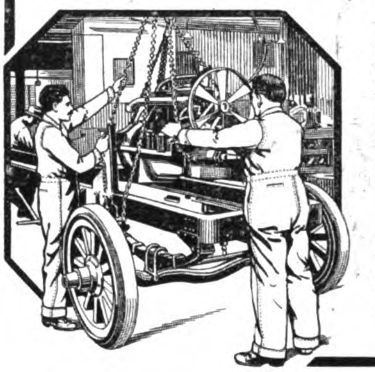
UNCLE SAM'S FIGHTING BOYS WEAR

IRONCLAD KHAKI

(Twill Cloth)

You men and women on the "firing lines" of industry should wear garments of this patriotic economy cloth, too. It's fast color and ***wears like leather.***

Coveralls, Overalls, Shirts and Pants



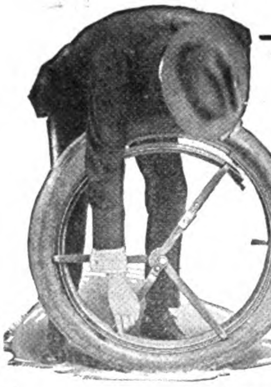
made of the genuine IRONCLAD KHAKI (the kind Uncle Sam uses) carry the yellow "Army label" like the above. LOOK for it and the Guarantee Bond in the garments before you buy.

See for yourself what Ironclad Khaki and Miss Ironclad Khaki, the special woman's overall cloth, look like. Write today for free samples.

Garments on Sale by Dealers —Everywhere.

We are makers of the cloth only

FRANKLIN MANUFACTURING CO.
134 Market Place Baltimore, Md.



REMOVE *ANY* RIM

with the

"Lawco" Rim Tool

(Patents Pending)

Do in a minute what now takes an hour without injury to rim, tire, or valve stem. Use the "Lawco" Rim Tool. Closes compactly. Weighs 5½ pounds. Only $3.50.

Dealers write for proposition

Dept. G. THE F. H. LAWSON CO., Cincinnati, Ohio

PROFIT ON YOUR LABOR

STENMAN ELECTRIC VALVE GRINDER

Repairers need it; Efficiency prompts its use; Scarcity of workers demand it.

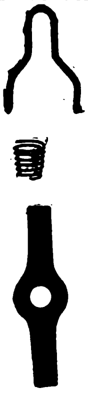
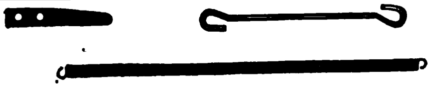
In twenty minutes eight valves can be ground easily and accurately. A perfect job guaranteed. A novice can operate it. The old way by hand takes two hours or more with uncertain results. Saves the time and adds it all to profits.

☞ Plugs in on any lamp socket. A or D current, 110 or 130 volts. Made for higher voltage when required.

☞ State voltage desired when ordering.

Sold by dealers or direct.

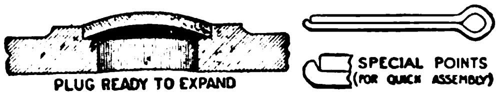
The Stenman Electric Valve Grinder Co.
42 Southbridge Street, Worcester, Mass.

SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

16 lbs. Assorted Springs	**$2.00**
25 lbs. Assorted Cotters	**5.00**

Subject to Market Changes.
Send for Catalogue.


PLUG READY TO EXPAND
SPECIAL POINTS (FOR QUICK ASSEMBLY)

Welch Patent Expansion Plug.
For Closing Core Holes.
M. K. HUBBARD SPRING CO., Pontiac, Mich.

The MANLEY GARAGE AND SHOP EQUIPMENT

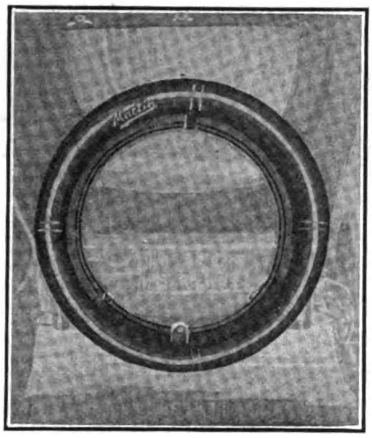
Every garageman and repairman should get our catalog. You'll find in it just the time and labor savers you need, and their prices will astonish you by their moderateness.

Send for your copy of this catalog today

THE UNITED ENGINE & MFG. CO.
Hanover, Pa.

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.
Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.30
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts.
The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

Coil Replacement 90% Big Profits

Fully 90% of cars in use are coil equipped. To the enterprising service man, this fact will present a wonderful opportunity for profit on coil replacement business, especially if he is stocked with

JEFFERSON COILS

"The only complete Interchangeable Line of Battery Replacement Coils."

For Jefferson Coils will enable you to give every customer instant service. No big, varied, costly ever-changing stock of coils is required.

Jefferson Coils prepare you for every emergency. A small stock of Jefferson Coils can be adapted to fit all makes and models of battery equipped cars. Flexible caps, terminals and brackets make these coils answer every requirement.

Jefferson Coils are of highest quality; reliable and long lasting. Fully guaranteed.

SEND FOR COIL LIST

showing list of all cars that are Coil-Equipped and the types of Jefferson Coils and Brackets to be used as Replacements.

JEFFERSON ELECTRIC MFG. CO.
429 So. Green St., Chicago

JEFFERSON
Battery Ignition Coils

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

Strengthen Your Advertising Literature

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

Ross-Gould
Mailing
Lists St. Louis

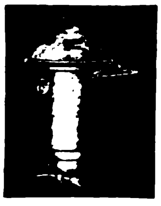
KENNEDY AUTO STORAGE COVERS

Furnish efficient and economical protection for cars in dead storage. They are made of heavy, durable paper in standard sizes to fit any cars.

MADE ONLY BY

THE KENNEDY CAR LINER & BAG CO.
SHELBYVILLE, IND.

THE BURKE Ox-iliator

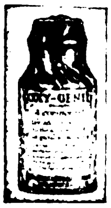


Ox-Iliator

supplies the gasoline motor with additional oxygen (moisture) needed for complete combustion; consumes carbon; saves fuel; increases motor power. Inexpensive, easily installed.

Oxy-Genii capsules

double efficiency of any air moistener; surcharge water through which air passes with free oxygen. 30 capsules—3 months supply—75 cents. Write for booklets.



Oxy-Genii

AUTOMOBILE DEVICES COMPANY
PHILADELPHIA, U. S. A.

BUNTING BEARING BRONZE
B.B.B.CO. No. 1

Same quality as our finished bronze bushings and bearings used by manufacturers the country over.

Your repair stock is not complete without it.

All leading jobbers
Ask for catalog N

The Bunting Brass & Bronze Co.

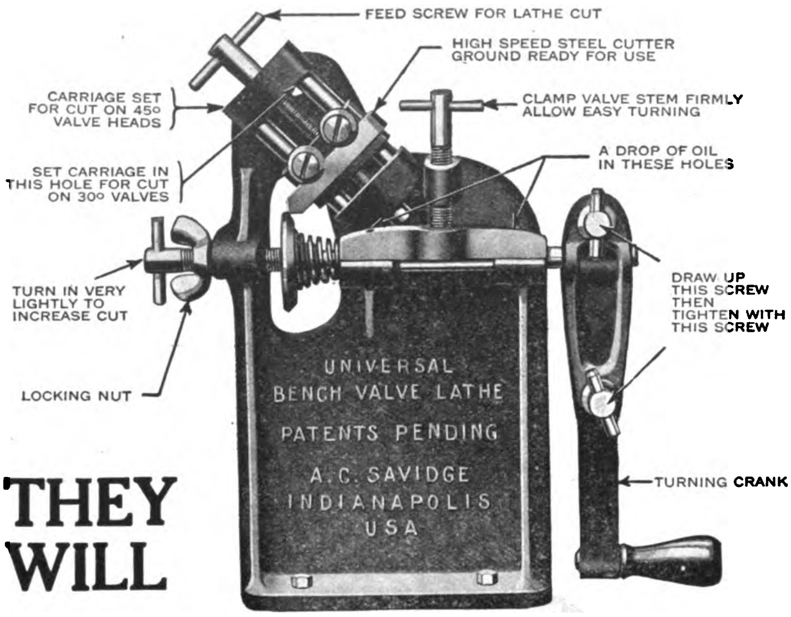
727 SPENCER STREET
TOLEDO, OHIO.

CORED BARS

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3⅛
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8⅛
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15⅝
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20

UNIVERSAL BENCH VALVE LATHE


FEED SCREW FOR LATHE CUT
HIGH SPEED STEEL CUTTER GROUND READY FOR USE
CARRIAGE SET FOR CUT ON 45° VALVE HEADS
CLAMP VALVE STEM FIRMLY ALLOW EASY TURNING
A DROP OF OIL IN THESE HOLES
SET CARRIAGE IN THIS HOLE FOR CUT ON 30° VALVES
TURN IN VERY LIGHTLY TO INCREASE CUT
DRAW UP THIS SCREW THEN TIGHTEN WITH THIS SCREW
LOCKING NUT
UNIVERSAL BENCH VALVE LATHE PATENTS PENDING A. C. SAVIDGE INDIANAPOLIS USA
TURNING CRANK

JUNIOR VALVE LATHE PATENTS PENDING A. C. SAVIDGE INDIANAPOLIS

THESE ARE

Simple, rugged and accurate valve lathes that ***anyone can use*** quickly and efficiently because they are self centering and the angles are accurately fixed.

Better than a machine lathe as they are specially designed to true valve heads and to true them ***right.***

THEY WILL

Save valve grinding and assure a perfect concentric fit.

Eliminate those carbon ridges, save gasoline, assure an easy starting and sweet running engine, ***make a lasting job*** that you know is right. Save your old valves, they are often better than new ones if properly trued.

Equipped with high speed steel cutter ready for use,—and
ABSOLUTELY GUARANTEED

Write for folder giving full description
and valuable information.

A. S. SAVIDGE, No. 3 Williams Building, Indianapolis, U. S. A.

King Safety Tail Light takes the fear out of night driving—

Equip your car with one NOW

For particulars write

KING-BULL MFG. CO.

123 E. Ontario St.
Chicago.

TRACTOR WORLD

Monthly **20c the Copy** **$2 the Year**

A Tractor Journal devoted to the tractor industry and trade

Published by

The Automobile Journal Publishing Company
PAWTUCKET, RHODE ISLAND

DIXON'S GRAPHITE GREASE No. 677

It's Easy To See

why Dixon's are the best lubricants. When bearing surfaces are coated with

DIXON'S GRAPHITE Automobile LUBRICANTS

metal-to-metal contact is prevented by the superior, especially selected flake graphite grease which forms a film that outlasts any other kind of lubricant.

Write for Dixon's Dealer's Deal No. 49-G.

Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

ESTABLISHED 1827

Model 280

Weston GARAGE TESTING INSTRUMENT

This is the most practical Electrical Equipment you can install. It enables you to locate electrical troubles in motor cars and apply the proper treatment to remedy them.

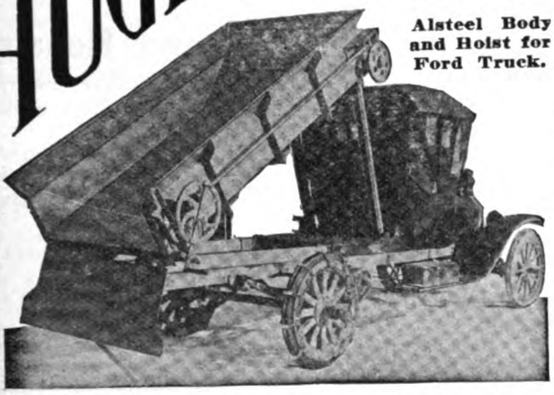
This Weston Instrument is considered indispensable by thousands of garage owners who use it. A very large demand has resulted. No competitive make of instrument is nearly so comprehensive in scope or dependable in operation.

In normal times we can promptly fill orders, but under present circumstances, when government demands are exceedingly heavy and our raw materials can be used only for government work, garages should either furnish us with government contract numbers, when available, or place their orders subject to preferential delivery when it is possible for us to manufacture and make shipment of commercial orders.

23 Branch Offices in the Larger Cities

WESTON ELECTRICAL INSTRUMENT CO., 103 Weston Ave., Newark, N. J.

AUGLAIZE HOIST



Alsteel Body and Hoist for Ford Truck.

Boosts the Load With the Least Effort

QUADRUPLE WORM GEAR

Built in sizes up to 5 tons. Weighs less than any other hoist and covered with a liberal guarantee. **Prices up to 1½ tons, $83.00; from 1½ to 5 tons, $109.00.**

AUGLAIZE ALSTEEL BODIES

Staunchly constructed of all steel and guaranteed against defective material and workmanship. Will carry 50% overload. Prices range from $150.00 to $225.00, according to size.

Auglaize Special Alsteel Body and Hoist for Ford Truck

Carrying capacity from 2700 to 3000 lbs. of gravel, sand, crushed stone or coal; approximate weight, 550 lbs. **Retail price, $206.25. Equipped with the Auglaize Powerful, Speedy, Light-Weight Hoist. Dealers allowed a liberal commission and selling co-operation. Write at once for catalog and sales plans.**

THE AUGLAIZE MOTOR CAR CO., New Bremen, Ohio.

FREE AIR COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Automatic Inflating Valve

to your air hose.

Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve.

Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.50 in U. S. A.

W. S. S.

We	Suggest	Stamps
War	Savings	Stamps
Without	Shells	Soldiers
Would	Soon	Succumb
War	Savings	Stamps
Will	Supply	Soldiers
With	Shells	

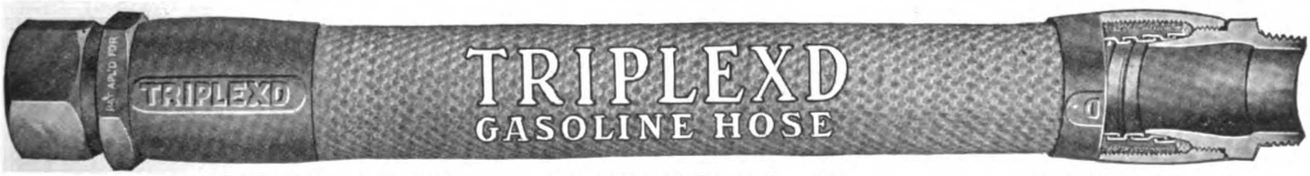
Buy all you can and help to win the war.

Manufactured by **A. SCHRADER'S SON, Inc.**
800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to owners of pleasure cars.



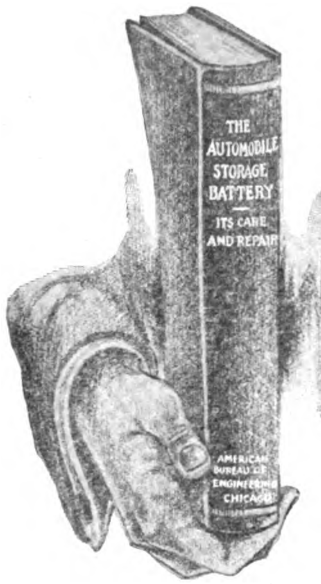
METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

Write to Dept. J-10 for illustrated matter and prices.

Stumped=Beaten

And By a Storage Battery, Too.

"Charged all O. K. but didn't hold up—Tested out on the voltmeter and hydrometer all right but, when used, the battery charge flattened right out. I don't know what can be the matter."



THE AUTOMOBILE STORAGE BATTERY
ITS CARE AND REPAIR
AMERICAN BUREAU OF ENGINEERING CHICAGO

Ever think that one set of plates might be defective—not doing its duty and thus "kill" the charge? Test each set and see which needs fixing or replacing. Test them right in the battery with an AMBU CADMIUM TEST OUTFIT, with specially calibrated, positive and negative voltmeter. That will tell you exactly.

You Will Find The Answer Here

This book—technical, in non-technical terms—tells everything that may be the trouble with a storage battery and the way to fix it—tells how to keep it in good condition all the time.

Automobile Storage Battery—Its Care and Repair

Leather bound of about 300 pages, so written by experts that everyone can understand. Opens a new position for you—a better position—if you know all this book can teach.

Every garage office should have one for reference. Five days examination. If not the best thing of its kind return it for your money. $5 postpaid. Sold by jobbers or order direct.

American Bureau of Engineering
1032 Wabash Ave. CHICAGO

Guaranteed Bearings
We Exchange Rebuilt Bearings for old or worn ones BILODEAU BALL BEARINGS WORKS

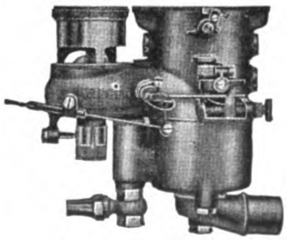
ECONOMY *Plus* EFFICIENCY

These words mean great strength toward winning the war. They form our policy—and by the standard of that policy we are continually schooling garage men and repair men to avail themselves of our exceptional service of **Rebuilding Worn Bearings.**

Bilodeau Rebuilds All Makes of Worn Bearings, to Run as True as When New.

Write at once for catalog, listing types, sizes and prices of standard designs. Trade discounts confidential.

BILODEAU BALL BEARING WORKS
66 Stanhope Street, BOSTON, MASS.



YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

More Mileage—More Power—More Speed

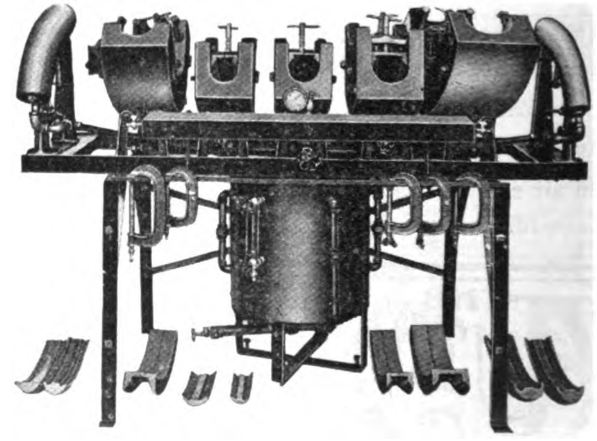
Get him to try it for 15 days. Satisfaction guaranteed.

WEBBER MANUFACTURING COMPANY
Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway

---

DON'T LET THIS BE ANOTHER "LOST OPPORTUNITY".

We urge all wide-awake, up-and-doing ambitious men with a small savings account to go into the **TIRE REPAIRING BUSINESS.** Big money. Everywhere a success. No previous training necessary. We instruct you free, teach you everything—how to begin and how to advertise.



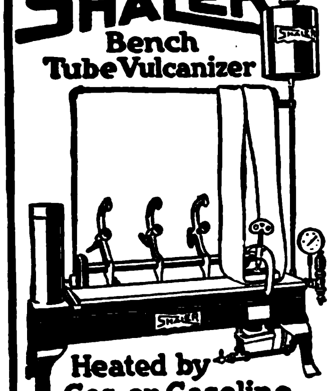
THE VANDERPOOL VULCANIZER

5 cavity model has capacity of $100.00 worth of work a day and repairs tires upon the **CORRECT** principle just as they were made at the factory. Indorsed by leading tire manufacturers. This field uncrowded. Investment small and immediate returns.
Write for full particulars, testimonials and free **TIRE REPAIRING MANUAL.**

In answering address Dept. P 4.

THE WM. VANDERPOOL CO., Springfield, Ohio.

SHALER Bench Tube Vulcanizer



Heated by Gas or Gasoline

Big Extra Profits for Every Garage

This handy Shaler Steam Heated Tube Vulcanizer makes four perfect tube repairs at one time—mends any kind of tear, cut or puncture in any tube perfectly.

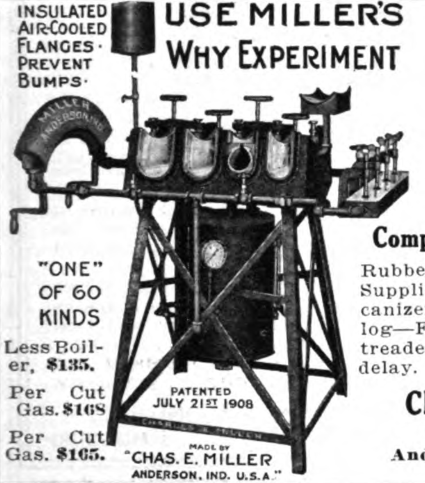
Has automatic heat control—no danger of explosions or damaging tubes. Anybody can operate it—does quick work—has large capacity and makes money fast.

Can be had with either gas or gasoline burners. Outfit complete, only $35.00. Subject to Trade Discount.

Send at once for our large, illustrated catalog describing SHALER Vulcanizers for motorists, garages and tire repair shops.

C. A. Shaler Co., 259 Fourth St., Waupun, Wis.

USE MILLER'S
WHY EXPERIMENT


INSULATED AIR-COOLED FLANGES PREVENT BUMPS.
MILLER ANDERSON, IND.
PATENTED JULY 21ST 1908
CHARLES E. MILLER
MADE BY "CHAS. E. MILLER ANDERSON, IND. U.S.A."

"ONE" OF 60 KINDS

Less Boiler, **$135.**

Per Cut Gas. **$168**

Per Cut Gas. **$165.**

Extra Ply Tires, Tubes, Vulcanizers

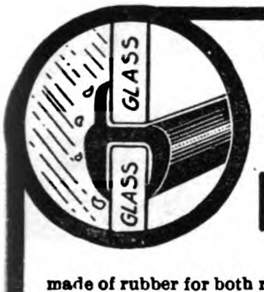
60 kinds.

6 kinds Wrapping Machines—Tire Building Stands—Air Pumps—Repair Stocks—Reliners—Steam Boilers.

Complete Tire Shop Outfits

Rubber Workers Tools and all Supplies—Boot and Shoe Vulcanizer—FREE 84-page Catalog—Four Cavity Ribbed Retreader. Write today. Don't delay.

CHAS. E. MILLER
1402 Meridian St.,
Anderson, Ind. U. S. A.



STOPS THAT LEAK
Thru the Windshield

The McCormick-Allmand Patented Weatherstrip is a necessity for every car. Now is the time it sells like hot cakes. Big profits.

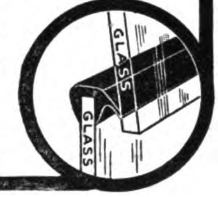
McCORMICK-ALLMAND —WEATHERSTRIP—

PATENTED

made of rubber for both regular and off-set type (Ford Cars) windshields. Closes space on windshields making it absolutely watertight. Fits any space or thickness of glass. Easily put on and off.

Write for Dealers' Proposition

Robinson Mfg. Co. **502 Lincoln Bldg. Louisville, Ky.**



Do Tiring Repairing

—but use only the most approved outfits

AKRON-WILLIAMS A-W PRODUCTS

Akron-Williams
TIRE REPAIR EQUIPMENT

Designed with the help of the foremost tire engineers; used, recommended and sold by all leading tire companies.

An outfit for every size shop—send for new descriptive catalog.

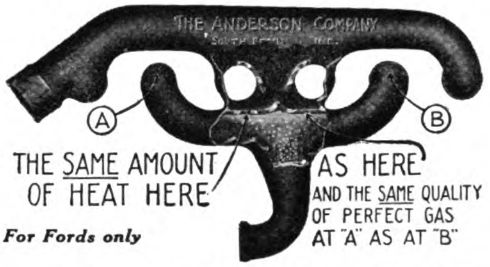
The Williams Foundry & Machine Co.
Ash Street, Akron, Ohio.

---

the ANCO EVENHEAT "HOT SPOT" MANIFOLD

"The Principle Is Right"

Like the **even heat** manifolds used with great success for perfect gasification of present stubborn gasoline **in all seasons and climates** and as standard equipment on the famous LIBERTY MOTOR, the official U. S. truck motors and on the engines of **late** CHALMERS, STUDEBAKER, HUPMOBILE and other well known cars—the ANCO **requires no attention or adjustments** by the user. The ANCO is the only non-adjusting one-piece manifold licensed to use for the FORD engine this vital **even heat** construction shown below, on which patent is pending.


THE ANDERSON COMPANY
A
B
THE SAME AMOUNT OF HEAT HERE
AS HERE
AND THE SAME QUALITY OF PERFECT GAS AT "A" AS AT "B"

For Fords only

WHAT "EVENHEAT" MEANS

Swift-moving heavy unvaporized particles of gasoline all strike the horizontal wall, called the "hot spot," which entirely separates the **hot** exhaust and **cold** intake channels. Shattering impact and intense heat combine to force instant and complete gasification. Note carefully how each half of this wall, right and left from the center, gets the **same** amount of heat, and how each cylinder gets the **same** high quality of gas —the **even heat** principle adopted by highest authorities named above as vital to best results in **hot** or **cold** weather.

GIVES INSTANT POWER

eagerly responsive to your slightest touch—a smooth-flowing, economical power that speaks a healthier engine, with cleaner pistons, spark plugs and valves, and crank case free from dangerous slugs of liquid gasoline. The Anco hand book tells you why. Ask for a copy.

Retails at
$9.75

ANCO EVENHEAT MANIFOLD
FORDS 1915
THE ANDERSON COMPANY

Rockies and West $10.50

Nicely finished and packed complete (gaskets included) in a substantial sealed shipping carton.

Free Dealer Helps

Attractive store signs, interesting sales manuals, convincing folders, striking window display cards and other excellent sales helps are supplied promptly to all Anco dealers.

Dealer Wires Jobber:

"Anco manifolds going like 'hot dog' sandwiches on a cold day at a public sale. Express twelve more QUICK. Have two more orders in. A lot more sold and none to put on. RUSH."

If your jobber hasn't yet stocked the Anco, order direct, giving his name.

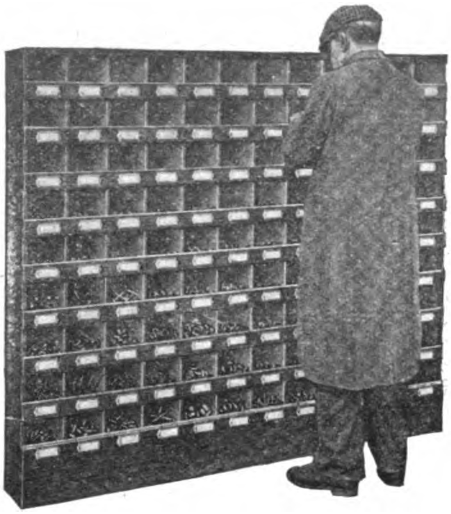
THE ANDERSON CO.
203 S. St. Joe St.,
South Bend, Ind.

Saves Gas-Prevents Carbon-Adds Power and Speed

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

KEEP YOUR

Valves
Valve Springs
Bolts
Piston Rings
Bearings
Bearing Cones
Grease Cups
Cotter Pins
Spark Plugs
Hose Clamps
and
Miscellanous
Supplies and
Repair Parts
in an



HB Stock and Accessory Bin

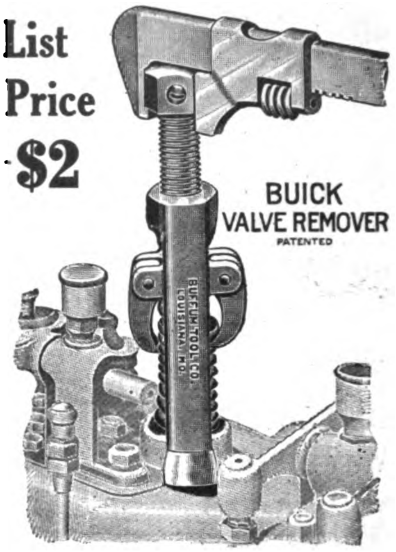
An attractive, serviceable and economical equipment for keeping stock where it is easy to find. Better and cheaper than built-in bins. Sturdily built, with front partition and ends of genuine oak with durable light-grained finish. Back is of sheet steel. Contains 108 compartments 5 inches wide, 5 inches high and 8 inches deep, each compartment bearing a card holder for indexing contents. Bin stands 65 inches high, 7 feet long, 10 inches deep. Shipping weight 275 pounds. Price $38.40. Shipped direct from factory. Sold under absolute money-back guarantee. You run no risk in ordering from this ad.

Write for information concerning full line of garage Files and Cabinets.

Hobart Brothers Co., Box C 12 Troy, Ohio

BUICK VALVE REMOVER

List Price $2



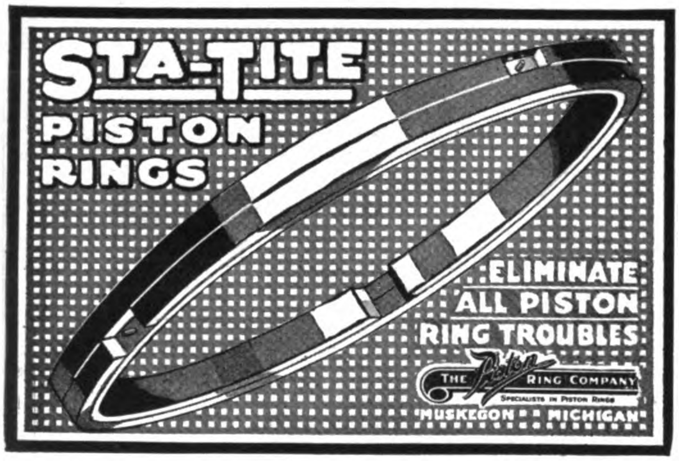
The Buffum Buick Valve Remover is a practical time and labor saving tool for repairers and owners.

It is quick, sure and safe and eliminates all chance of bending washers, valve stems and valve springs, or breaking the valve cage. It lifts the valve up straight with a strong positive pull.

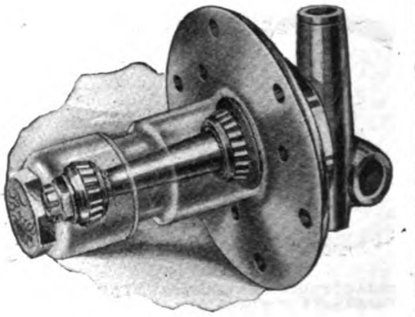
The Buffum will fit any Buick engine with the valves in cages. Light, compact and occupies the same space as an ordinary wrench and can be carried in any tool box.

Jobbers and dealers, send for latest catalogue of Buffum car specialties and tools for auto repairers and owners.

BUFFUM TOOL CO., LOUISIANA MISSOURI



STOP
FORD
BEARING
TROUBLE



NATIONAL BEARINGS SERVICE CO.

WRIGHT TAPER ROLLER BEARINGS

Replacements for all Standard types of Bearings

PHILADELPHIA **NEW YORK**

For sale by accessory and hardware dealers or by MAIL POST-PAID 50c EACH

RAIN-SNO

REG. U.S. PAT. OFF.

CLEAR VIEW

WINDSHIELD CLOTH

PREVENTS ACCIDENTS

Just RUB IT OVER THE GLASS and RAIN or SNOW **cannot collect** to obstruct the vision.

INSIST UPON THE "RED CLOTH"

Which is guaranteed to give continuous use for one year or money refunded. Made only by

SUFFOLK MANUFACTURING CO., INC., DEPT. D.
60 LONG WHARF BOSTON, MASS.

FISK

Best to use
Best to sell

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

TRADE OUTLET

New Tops For Old Cars

Dress up your old car—put on a new, up-to-the-minute one-man-top. Your car will look like new. The stylish low design adds beauty to any car. Your old top fixtures are used and the work of attaching is done quickly. Your car is not laid up. We have special fixtures for attaching new top securely to your old windshield. We have put on hundreds of tops for Detroit car owners—every one is more than pleased. If there is any doubt in your mind drive out and talk it over with our top man. He knows the top business thoroughly.

Five-passenger, one-man mohair top	$45.00
Seven-passenger, one-man mohair top	47.50
Roadster one-man mohair top	27.50
Ford Touring one-man mohair top	37.50
Ford Roadster one-man mohair top	25.00

The above prices include a complete one-man-top with storm curtains and top dust proof boot, together with fittings for properly attaching top to any windshield.

We build all weather curtains and tops for every make of car.

PURITAN ELECTRICAL SUPPLIES.

6 volt Autolite Generators, model GG, brand new	$12.50
6 volt Ward-Leonard Starting Motors, brand new	15.00
6 volt Ward-Leonard Generators, brand new	15.00
Ward-Leonard Controllers, brand new	8.00
Connecticut G. Lighting and Ignition Switches, new	6.00
Connecticut G. A. Coils, new	7.50
Cuno Starting Switches, new	2.50
Bosch D. U. 4 Magnetos, variable spark, rebuilt, guaranteed	30.00
6 volt 100-hour Exide Storage Batteries, new	20.00
6 volt 100-hour Century Storage Batteries, new	20.00

PURITAN MACHINE CO.
31 Puritan Bldg., 10th and Lafayette St.
Detroit, Mich., U. S. A.

Wilkins & Hovey Co.

35 Albany St.

Cambridge, Mass.

WELDING

GOOD WORK

PROMPT SERVICE

Send us your broken cylinders, frames and machine parts.

Scored cylinders filled and fitted.

Telephone Camb. 4830.

WRITE

AUTO PARTS CO.

FOR

REPAIR PARTS

We can save you 50% to 75% off Manufacturers List

LARGE STOCK

of Crank Cases, Crank Shafts, Cylinders, Pistons and Connecting Rods, Transmission Cases, Rear Axles, Transmission Gears, Hubs, Spindles, Radiators, Pumps, Bearings, Springs and other parts.

SPECIAL

RADIATORS—Reo, $15; E. M. F., $15, and many others at low prices. Write us your wants.

GENERATORS—35 Md. G. D. Auto Lite Generator, as used on 83-85 Overland, $23.

15 Md. G. G. Auto Lite Generator, as used on Chevrolet, $20.

GEARS—Our large stock enables us to fill orders without delay.

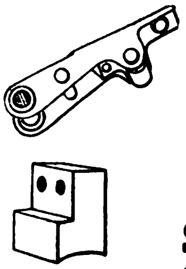
SERVICE

Every inquiry will receive prompt attention. Orders shipped same day as received. Satisfaction guaranteed or money refunded.

Get our New and Used Parts List. It will save you money. Write for it today.

AUTO PARTS COMPANY

4103 Olive street, St. Louis, Mo.



Superior Parts and Brushes

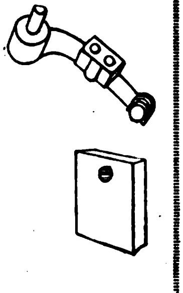
FOR ALL

Ignition and Starting Lighting Systems

Used for Years by the Best Repair Shops Everywhere

"They Last Longer but Cost Less"

Write for Catalogue



Specialty Manufacturing Co.
637 Massachusetts Ave., Arlington, Mass.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. **40 Mathewson St., Providence, R. I.**
Phone Union 4179-R.

AUTO SAVE 50-90% FOR 400 CARS PARTS

POPE, PACKARDS, PIERCE, BUICK, STEVENS-DURYEA, KNOX, OVERLAND, ETC.

Motors	$25.00 up	Presto Tanks	$ 4.50 up
Magnetos	4.00 "	New Spotlights	2.00 "
Carburetors	3.00 "	Generators	10.00 "
Rear Axles	15.00 "	Gears	1.00 "
Front Axles	5.00 "	Bearings	1.00 "
Cylinders	5.00 "	Radiators	10.00 "

$12 Diamond Bumpers............$5.50

Jobbers in Bankrupt Auto Supplies.

BRIGHTMAN AUTO EXCHANGE
84 Wooster St., Hartford, Conn.

EXPERT REPAIRING; every known Magneto and Ignition System, Starters, Motors, Generators. **Magneto Exchange and Repair Shop, 269 Halsey Street, Newark, N. J.**

Classified Advertising

BRINGS BIG RETURNS

20 Cents a Line, Seven Words to Line.

"NORMA"
PRECISION
BALL BEARINGS
(PATENTED)

Preeminence must rest on performance. Claims are futile things, in these times when service is sought from all and placed before all. And nothing but the staunchest serviceability can maintain that character of performance which stands for full service faithfully rendered.

"NORMA" Precision Bearings—the standard bearings in high-grade ignition apparatus and lighting generators—have to their credit years of performance records under such speed conditions as to establish their preeminence beyond question.

Be *Sure*—See That Your
Electrical Apparatus
Is "NORMA" Equipped.

THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK

Ball, Roller, Thrust, Combination Bearings

THE ACCESSORY AND GARAGE JOURNAL

INDEX TO ADVERTISERS

Page
Adamson Mfg. Co 53
Advance Auto Accessories Corp 8
American Bureau of Engineering, Inc 58
American Mfg. and Supply Co 54
Anderson Co 59
Anti-Borax Co 64
Auglaize Motor Car Co 57
Automobile Devices Co 55
Auto Parts Co 61

Bilodeau Ball Bearings Works 58
Bowser & Co., Inc., S. F 63
Brightman Auto Exchange 61
Brunner Mfg. Co 64
Buffum Tool Co 60
Bunting Brass & Bronze Co 55

Chicago Eye-Shield Co 53
Corps Brothers 61

Dixon Crucible Co., Jos 56
Dyer Co., G. H 1

Faw, Inc., J. H 53
Fisk Rubber Co 60
Fitzgerald Mfg. Co 4
Franklin Mfg. Co 54

Gates Rubber Co 3

Heintz & Co., Jas. C 52
Higgins Spring and Axle Co .... Cover
Hobart Brothers Co 60
Hubbard, M. K., Spring Co 54

International Metal Polish Co 5

Jefferson Electric Mfg. Co 55
Jenkins Vulcan Spring Co 7

INDEX TO ADVERTISERS

(Continued)

	Page
Kennedy Car Liner and Bag Co	55
King-Bull Mfg. Co	56
Lawrence, Inc., Geo	64
Lawson, F. H., Co	54
Magneto Exchange and Repair Shop	61
Martin Mfg. Co	55
Metal Hose and Tubing Co	57
Miller, Chas. E	59
Mitchell & Smith, Inc	64
Mueller & Co., R. S	53
National Bearings Service Co	60
New Departure Mfg. Co	53
New Era Spring and Specialty Co	64
Norma Co. of America	62
Piston Ring Co	60
Puritan Machine Co	61
Robinson Mfg. Co	59
Ross-Gould List and Letter Co	55
Savidge, A. S	56
Scaife, Wm. B. & Sons Co	53
Schrader's Son, Inc., A	57
Service Station Equipment Co., Inc	52
Shaler Co., C. A	59
Shurnuff Mfg. Co	Cover
Specialty Mfg. Co	61
Stenman Electric Valve Grinder Co., Inc	54
Suffolk Mfg. Co., Inc	60
Tire Construction Co	6
United Engine and Mfg. Co	54
United Motors Service, Inc	2
Vanderpool Co., Wm	58
Victor Mfg. and Gasket Co	Cover
Walden-Worcseter, Inc	Cover
Webber Mfg. Co	58
Weston Electrical Instrument Co	57
Wilkins & Hovey Co	61
Williams Foundry and Machine Co	59

Conserve Labor

Everyone possesses some degree of energy. That energy expressed is labor. Without labor, the world would suddenly stand still. Production of any kind would be absolutely impossible. Humanity would perish.

Labor is, and will continue to be scarce. Labor is costly. Expenditure of labor through inefficient methods is a waste not only of labor, but of time and money, all of which should be expended more profitably.

BOWSER

Systems

for the storing and handling of oil and gasoline will conserve

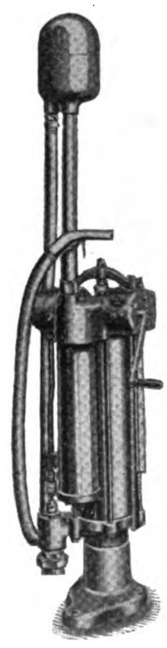


Figure 101, 5-Gal. Pump for Gasoline

70 %

of the labor necessarily expended by less efficient methods.

They also conserve:

TIME
CAPITAL
MACHINERY
SPACE
LIVES
PROPERTY
MATERIAL

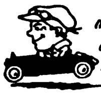
BOWSER SYSTEMS are:

Leakproof	**Dirtproof**
Lossproof	**Deterioration proof**
Fireproof	**Evaporation proof**

An inquiry carries no obligation whatever.

Let us help you Conserve Labor

S. F. Bowser & Company, Inc.
FORT WAYNE, INDIANA, U. S. A.



"The Motorist who is Brunnerwise knows Brunner Service Satisfies"

The Confidence of the Motoring Public is the Garagemans Greatest Asset—

BRUNNER

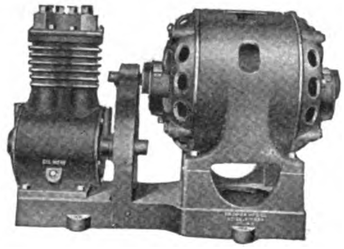
Automatic Garage Air Compressors inspire confidence because they are absolutely reliable, and motorists know they are going to get service when they pull up in front of the garage displaying the Brunner sign—

BRUNNER AIR SERVICE

AIR

THE MOTORIST WHO IS BRUNNERWISE
KNOWS BRUNNER SERVICE SATISFIES

The bright red centre of the well-known Brunner sign is eagerly sought out along the highways from ocean to ocean by thousands of Brunnerwise motorists who know that a high-class, efficient compressed air supply is always available where the Brunner sign is displayed. The Brunner sign was the first air sign—an original Brunner idea.



The Brunner is the pioneer of all garage air compressors—a Brunner Automatic would increase the efficiency of your air service and conserve labor for you, Mr. Garageman.

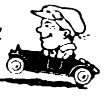
Write for catalogue No. 15 and name of the Brunner jobber covering your town.

Brunner Manufacturing Co.

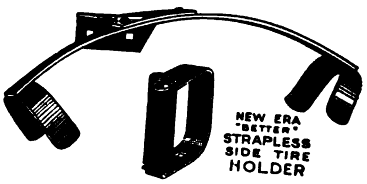
Main Office & Plant:
UTICA, N. Y.

Western Branch:
Cincinnati, Ohio

"The Motorist who is Brunnerwise knows Brunner Service Satisfies"



New Era "Better" Strapless Side Tire Holder.



Made of steel, has no cast parts to break and no straps to wear out or be lost. The locking device is a part of the tire holder. Tire easily slips into place and is quickly adjusted. A convenient, light tire carrier that has many exclusive advantages. Self-expanding carrying rim can be furnished extra where demountable rims are not used.

Ask your dealer for the New Era "Better" Strapless side tire holders. Prices $2 to $3.

New Era Spring & Specialty Co.

1177 Hamilton Ave. Grand Rapids, Mich.

Anti-Borax
WELDING
FLUX

OUR Brazing and Welding Fluxes for Blacksmith work and Acetylene or Electric Welding of all kinds of metal are considered by all users to be the best on the market. Order Anti-Borax Fluxes and get the best results.

MANUFACTURED BY

Anti-Borax Compound Company

FT. WAYNE, INDIANA.

CYLINDER HEAD GASKETS
for
all Makes of Cars

Immediate deliveries from
BOSTON STOCK

MITCHELL & SMITH INC.
1090-1092 COMMONWEALTH AVE. BOSTON, MASS

Perfection Springs

2000 Ford Fronts
200 Maxfer Rear
200 Smith Form A Rear
ALL OTHER MAKES

Immediate Deliveries

Dealers write for prices

Geo. Lawrence, Inc.

Cambria Street, Boston

DEMAND DYER

WHEN

You Want The Best Ford Replacement Parts

WE NOW MANUFACTURE

In Large Quantities

Pistons (regular and lightweight), Step-Cut Rings, Diagonal-Cut Rings, Wrist Pins, Wrist Pin Bushings, Rear Axle Shafts, Spindle Body Bolts, Spindle Arm Bolts, Stationary Cones and Adjustable Cones.

Guaranteed to satisfy most rigid requirements on material, sizes and workmanship.

Standard Weight

THE BEST ALWAYS

SIZES

STANDARD
.0025 oversize
.005 oversize
.010 oversize
.015 oversize
.025 oversize
.031 oversize
.033 oversize

Lightweight

FORD TYPE PISTONS

Car Owners and Dealers Want Dyer Pistons Because:

1. All Measurements are Guaranteed Correct.
2. They are Accurately Fitted With the Best Step-Cut Rings.
3. They are of Uniform Weight—3¼ Pounds.
4. Pistons and Rings are Ground to Exact Size and Have a High Finish.
5. The Pins and Bushings are Made From the Best Stock Carefully Ground, Reamed and Fitted.

NOTE: ***We are again producing our well-known cast iron "Lightweight" piston which is One Pound lighter than the regular Ford giving less wear and vibration and more power and speed.***

THE G. H. DYER CO., Cambridge, Mass.

CHARLES C. GATES, E. M.

What Jobbers are doing.

1919 is to be a big year for blowout patches—Everybody predicts it.

Tires are scarcer and are costing more than for many years past, and the motorist insists on getting more miles out of them.

Today when a car owner buys an inside patch, he wants service, and expects it—A "take-your-own-chances" sort of a patch won't go.

The dealer who serves him knows this and is now demanding a patch that is backed by a guarantee—and it is the same with the jobber.

Over 120 of the biggest accessory jobbers of the United States have already specified their 1919 requirements and every one of them calls for a patch with the manufacturer's guarantee printed on it, so that the car owner will know just what he is buying.

The "Vulco"—Guaranteed—is the best patch we ever made—it's the kind of patch the car owner has always wanted, and now he is demanding it.

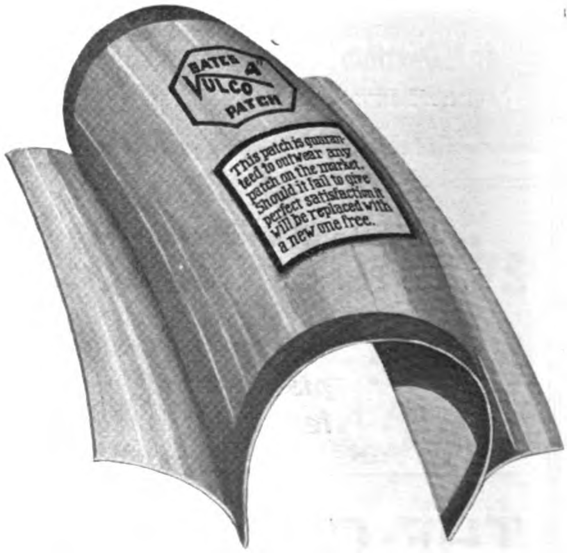
You'll say "probably costs too much," but here is where a surprise awaits you—it costs no more.

You can sell your customer a guaranteed patch and not only make as much profit but will sell double as many patches as you ever have before.

Don't overlook this big sales opportunity—your jobber will tell you about it.

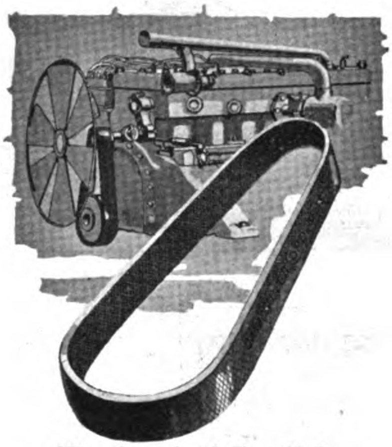
GATES
Rubber Company.
DENVER

"World's Largest Makers of Fan-Belts."


GATES "A" VULCO PATCH
This patch is guaranteed to outwear any patch on the market. Should it fail to give perfect satisfaction it will be replaced with a new one free.

"The Best Patch We Have Ever Made."

Making it One Hundred per cent.



The Standard Fan-Belt.

IT isn't any trick at all to cash in on every inquiry you get for a fan-belt in 1919—and it is always good business to be able to say, "you betcha" to a customer; besides, it's profitable.

Unless you double your fan-belt sales this year you aren't getting your share of fan-belt profits—and yet it's easy to get them.

The standardized principle applied to fan belts by Charles C. Gates, inventor of the Vulco Process, puts these additional fan-belt profits into your pocket.

A Gates Vulco-Cord Belt isn't made to fit just one car. It will fit as many as 14 different makes and models. From a stock of eight or nine standardized sizes you can fit every car in your vicinity that takes a flat belt.

Gates Vulco Cord "V" Belt takes care of the rest. Cars like the Packard, Pierce-Arrow, Cadillac, Peerless, Locomobile and twenty-three other famous American cars use a "V" shaped belt,—and the Gates Vulco "V" fits all of them.

You are probably carrying Gates Vulco-Cord Fan Belts today for Fords; but why content yourself with only half the fan-belt business? There are scores of customers in your store every day that don't have Fords; but they all use fan-felts, and you should supply them.

Every "Vulco" Belt you sell carries the manufacturer's guarantee of absolute satisfaction to your customer—guaranteed to outwear three ordinary belts. This is the reason why upwards of 4,000,000 Gates Vulco-Cord Belts have already been sold this year, and why over 25,000 dealers are now selling Vulco-Cords.

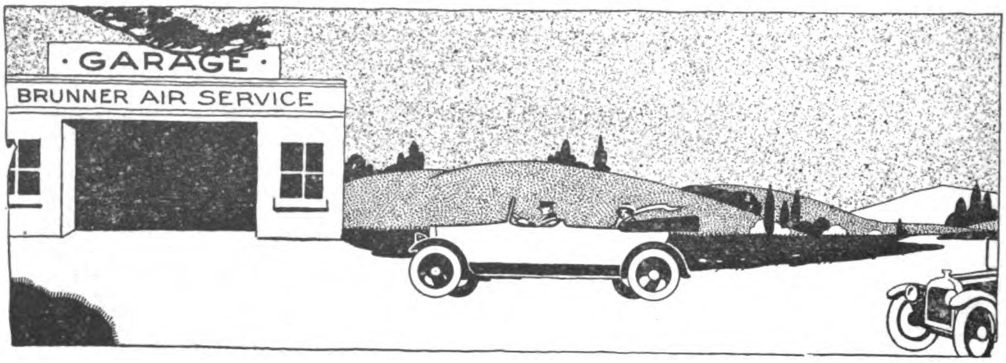
And there is no substitute for the Gates Vulco-Cord Belt—for it is patented.

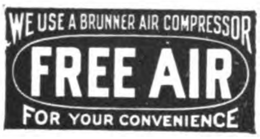
Get your share of this business—it's profitable!

Gates Vulco-Cord "V" Belt.

GATES
Rubber Company
DENVER

"World's Largest Makers of Fan-Belts."




WE USE A BRUNNER AIR COMPRESSOR
FREE AIR
FOR YOUR CONVENIENCE

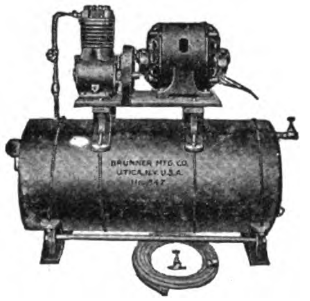
This red and blue enameled sign is distinctive—not easily confused with others. The motorist looks for it. It brings him to you for service and sales. Furnished FREE to users of Brunner Air Compressors

THE BRUNNER AIR SIGN

MEANS GARAGE SUCCESS

The ability to render permanently satisfactory service spells success in every line of business. The Garage man is no exception to the rule. Be his organization ever so perfect and his equipment the best,—if there is but one point in which service is lacking or not always available or satisfactory, that is enough to keep hundreds of dollars away from him.

A dependable air compressor is a vital part of the garage service. The motorist expects to find air service in every garage and he will go to the one that renders the most dependable service.



NO. 542 OUTFIT

Ideal for Installation where space is limited. Has ample capacity for garage housing up to forty to sixty cars. The motor is ½ H.P., securely bolted to substantial cast iron base and mounted on a 32 gal. Open Hearth Flange Steel Air Tank tested to 300 pounds.

The compressor is our No. 102, 2-cylinder air cooled, each cylinder fitted with a safety valve that can be instantly set for any desired pressure and absolutely dependable under all conditions.

The outfit includes air gauge, check valve. 25 feet of 3-16 in. "Resistoil" air hose, connected to one No. 82 needle valve on one end and having automatic tire connection on the other.

When used with our Model M Controller this outfit is entirely Automatic.

Brunner Air Compressors

The Brunner Air Compressor was designed especially for garage use. It is built in the largest, best equipped plant in the world devoted to the exclusive manufacture of garage air compressors. The employees of this plant take great pride in the product and every part of the work and every piece of material is the very best. Bearings are as carefully made and fitted, cylinders as carefully ground, piston rings fit as perfectly as in a high priced automobile engine.

On a Brunner compressor there is no need for attachments to help the motor carry the load—no restriction of lubrication to pull down the efficiency, increase wear and run up bigger-than-necessary electric bills. Maximum efficiency is attained with a minimum of operating and up-keep cost. Brunner compressors are built to operate under the hardest working conditions, day out and day in, with but little attention and yet perform consistently and satisfactorily.

Send for catalogue No. 15 showing the most complete line of small air compressors on the market and the name of the Jobber covering your town.

If you want assistance in planning or improving your air service our factory engineers are at your command. Tell us how we can serve you best.

Brunner Manufacturing Company

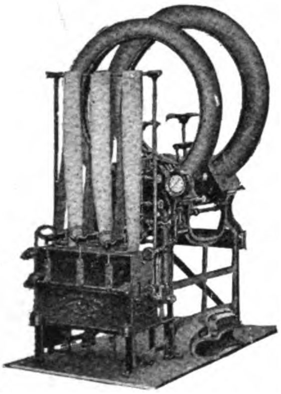
General Office and Plant: Utica, N. Y. Cincinnati Branch, Cincinnati, O.

The Brunnerwise Motorist

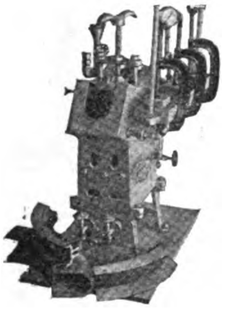
AUTOMOBILE
Sales & Service
SALES ROOMS
AUTO SALES
VULCANIZING
TIRE REPAIRS
?

Keep the Profits Coming in

Below are only two of our complete line



Model "M"
Will vulcanize two casings and three tubes at one time.



Model "D"
Takes on casing and three tubes at one time.

by establishing a complete department in your business for Tire and Tube Repairing. Hold the tire business of your present customers and win new ones.

Tire and tube repairing goes on all the time and pays three to four times the average per cent. profit on motor cars.

But—do your tire repairing under the latest approved methods with one of the outfits designed by the leading tire engineers—an

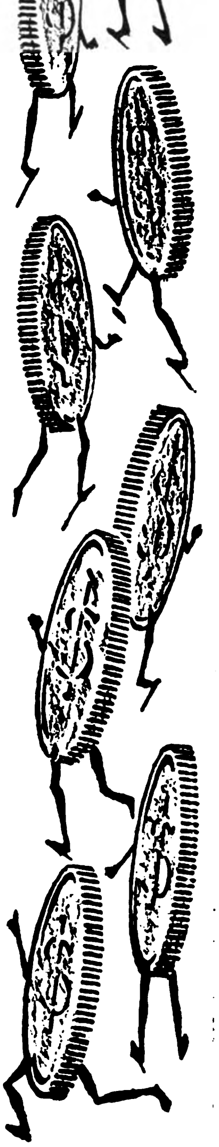
Akron-Williams

TIRE REPAIR OUTFIT

Akron-Williams Vulcanizers are so designed that by the use of reducing shells all the cavities can be used on smaller size tires, thus practically doubling the curing capacity of the outfit for most sizes.

There's an Akron-Williams outfit for every shop and a machine or tool for every purpose.

Send for catalog and prices



THE WILLIAMS FOUNDRY & MACHINE CO.

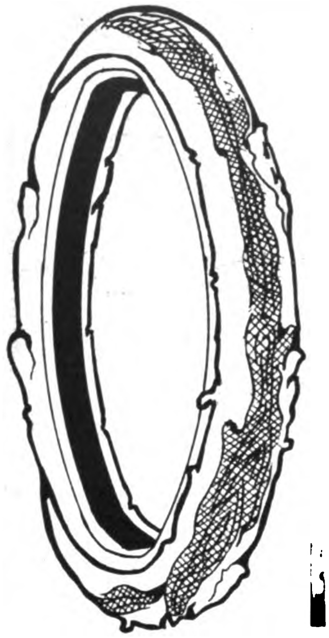
Ash Street, Akron, Ohio

RE-CONSTRUCTED TIRES

—A—

WONDERFUL DEALER OPPORTUNITY

Mr. Dealer:—You see the terrific waste of tires that are thrown away every day, when you know that such tires can be reconstructed (not merely re-treaded) and made to deliver from **2500** to **5000 Miles.**



To do this work properly requires the full equipment of a modern tire factory. We have installed this equipment—have the best experienced tire building operatives. We will either rebuild your tires or supply you with rebuilt casings. On reconstruction work our work includes cutting off the old tread, repairing all weak spots, building up new cushion, breaker and tread, building in a 2, 3 or 4-ply reliner of the best fabric if required, and vulcanization of the complete job. If this work is properly done, as we do it, the rebuilt tire will frequently give more mileage than the original.

Here are our prices for rebuilding consumers used tires:

GOODYEAR ALL WEATHER TREAD

Size	Plain	Non-Skid	Size	Plain	Non-Skid	Size	Plain	Non-Skid
30x3	$9.00	$10.20	32x4	$13.40	$14.95	35x4½	$18.20	$20.90
30x3½	10.20	11.25	33x4	13.90	15.50	36x4½	19.25	22.45
32x3½	11.25	12.30	34x4	14.45	16.00	35x5	21.40	24.05
31x4	12.80	14.45	34x4½	17.10	19.75	37x5	23.50	26.20

We have an interesting plan to offer live dealers—either to do their customers' work, or to give exclusive territory on Rebuilt Tires—A confidential price list will be mailed, for the asking, to responsible dealers.

We have a very attractive proposition for

Tire Repairers, Garages and Dealers

If you are doing this work we can supply you with ribbed or all-weather tread bands at a saving of

$1.50 to $3.00

Per Band

This is Real Saving ***Write Us Today***

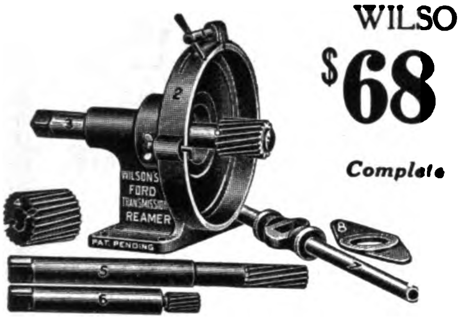
Tire Construction Company

129-131 Columbus Ave., Boston, Mass.

SAVE 2-3ds of your labor costs on every job

AND DO THE WORK BETTER THAN THE BEST THAT EVER WENT OUT OF YOUR SHOP

WILSON'S TRANSMISSION BUSHING REAMING MACHINE



$68

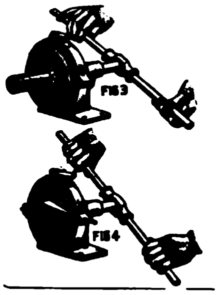
Complete

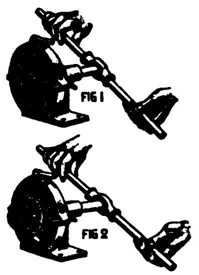
Remanufactures a Transmission complete in 30 minutes

Does the work much better than any other known method. All gears revolve perfectly and without noise and excessive wear. This outfit eliminates all guesswork; ordinary men do better work than experts can do without it.

FIGURE YOUR PRESENT COST ON THIS OPERATION

then compare it with 30 minutes our way and see how much money (in labor) you are losing on every job. All Reamers of highest grade and guaranteed indefinitely. Thousands of these outfits in use by largest Ford agencies. If you want references, I can refer you to some Ford agent or repairman you know who has an outfit.

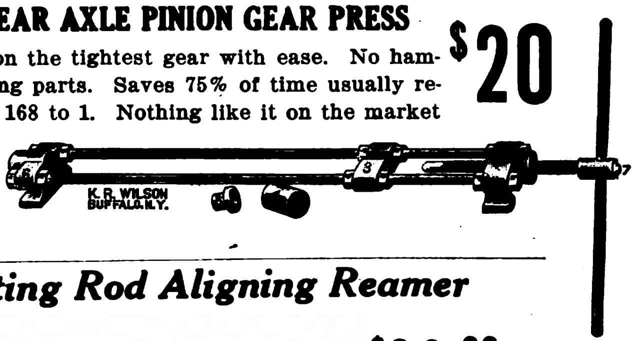




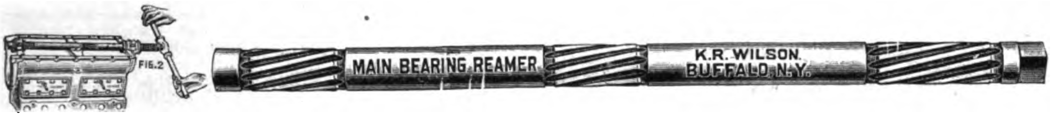
WILSON'S REAR AXLE PINION GEAR PRESS

$20

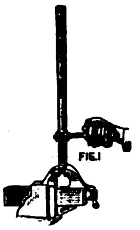
takes off or puts on the tightest gear with ease. No hammering or damaging parts. Saves 75% of time usually required. Leverage 168 to 1. Nothing like it on the market and no substitute as good. Shipping weight 60 pounds.



Wilson's Main Bearing & Connecting Rod Aligning Reamer

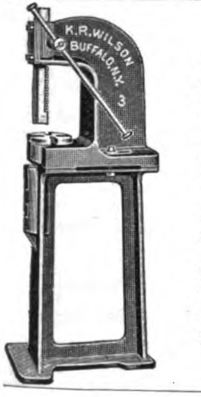


$28.00



"A day's job done in half an hour." 30 minutes to perfectly fit all main bearings and connecting rods. Better than you can do it by any other method.

Pilots guide the reamer. No chance to make mistake. Fig. 2 shows reamer cutting No. 1 and 3 bearings down to match the center bearing, which is always low and out of line. Then ream with all three in place, giving perfect alignment. No other reamer like it. Results impossible without the pilots and spiral flutes. Fig. 1, fitting connecting rods. First micrometer each of the throws. If less than 6-1000ths undersize, shaft is still serviceable. File off cap and tighten up bolts to fit pilot in usual way, as shown. Then release one nut about half turn for each 5-1000ths wear of the throw, and ream when fitted to shaft and both bolts tight it will be a perfect bearing fitting entire length and width. Far superior to any other known method. Motors put up this way can be started by hand.



ARBOR PRESS

for all Ford work other than axle shafts. Height of stand, 30 inches. Diameter of work, 11½ inches. Ram, 1½x1½x17 inches. Leverage, 46-1. A very useful tool in every Ford shop. Price with stand, $45. Less stand, $25.

VALVE-IN-HEAD CYLINDER HEAD.

Guaranteed to give more power than you can handle. Price less than $60 complete. Circular, etc., ready Feb. 20th.

Deliveries start March 15th sure.

CAMSHAFT ALIGNING REAMER, $10.

Aligns bronze bushing with cast iron bearings. Ready for delivery.

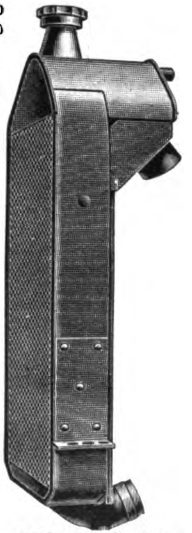
TRIPLE GEAR RIVETING JIG, $4.

Puts new life in triple gears. Ready for delivery now.

WILSON STANDARD RADIATORS.

Honeycomb cores, reinforced tanks and side walls. Tanks guaranteed to support weight of 250 pound man without denting. Core has four times cooling surface of other radiators. Easy to repair if frozen. Side walls support radiator around its entire circumference instead of localizing support on end of bottom tanks. All weak points of other radiators have been eliminated. Sell at same price as Ford. Dealers' net cost, singly, $21 f. o. b. our factory. Lots of 5, $19.

See sample at Auto Shows.



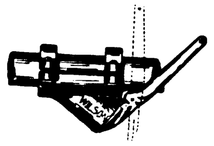
WILL EXHIBIT AT

NEW YORK SHOW

69TH ARMORY.
FIRST WEEK ONLY.
Be sure to see my equipment if you want to make more money.

Wilson's Safety Valve Cut-Out.

Improved Design Not Shown.



GET MY CATALOG IT SHOWS HOW TO MAKE MORE MONEY THAN YOU EVER THOT COULD BE MADE ON REPAIR WORK

K. R. WILSON, 10-16 Lock St. Buffalo, N. Y.

My Prices Talk.

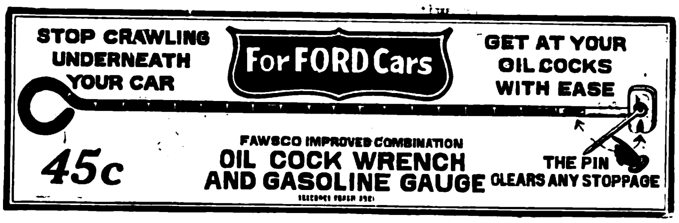
Complete your Catalog by showing our lines—

WITHOUT THEM YOU LOSE PROFIT

Fawsco Improved OILCOCK Wrench and Cleaner

and

Gasoline Gauge


STOP CRAWLING UNDERNEATH YOUR CAR
For FORD Cars
GET AT YOUR OIL COCKS WITH EASE
45c
FAWSCO IMPROVED COMBINATION
OIL COCK WRENCH AND GASOLINE GAUGE
THE PIN CLEARS ANY STOPPAGE

Large Easel Display Card like above with each order

Retails 45c Trade Doz. $3.60

Packed 12 in Heavy Carton
with DISPLAY STAND FOR
ONE—Balance in Envelopes.

THE NECESSARY TOOL

ONE POUND
EUREKA
VALVE GRINDING
TRADE MARK
COMPOUND
MFR'D BY
AUTO EQUIPMENT CO
32 HOLLYWOOD AVE.
EAST ORANGE, N.J.

The Standard Valve-Grinding Compound

Backed Up by an Uncontested Reputation.

Pound Cans, Each, $1.20

EUREKA
VALVE GRINDING COMPOUND

Thousands of Users Have Quickly Triumphed Over the Worst Carbonized and Poorly Seated Valves.

DEALERS—Meet the demand

Package, 40c

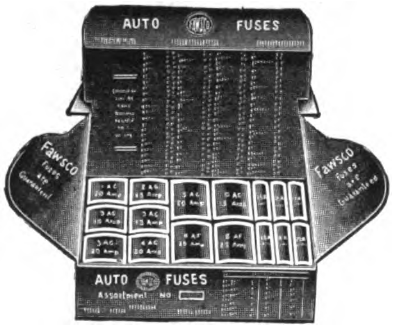
Car Owners will not only demand and call for it—they will exclamatorily Shout for

EUREKA Valve Grinding Compound

Cuts Sharp, Clean and True

Eureka Compound contains no oil or grease and consequently does not run all over the engine or work. For this and other well-known quality reasons, car owners prefer **Eureka.** It will grind valves in the worst possible condition in twenty minutes. It is put up in pound cans, each grade separate, especially for manufacturers and shops. Also put up in boxes containing three grades, coarse, medium and fine.

FAWSCO Automobile Fuses


AUTO FUSES
Fawsco
AUTO FUSES

TWO ASSORTMENTS

No.	Contains	Retail Value
1	114 fuses	$11.40
2	240 fuses	21.60

FUSE STOCKS are contained in a neat box as shown; separate carton for each size. Contains 16 sizes, fitting practically every make of car. Quantities are properly proportioned to demand.

CONTENTS

Type		No. 1	No 2
1 AG.	20 amp.	20	40
2 AG.	15 "	10	24
3 AG.	10 "	9	25
	15 "	15	30
	20 "	10	25
4 AG.	20 "	10	20
5 AG.	20 "	8	15
6 AG.	15 "	6	6
6 AF.	20 "	3	6
	25 "	3	6
15 A	Velie	3	5
16 A	Auburn	3	5
17 A	Mitchell	4	10
20 A	Buick	4	7
21 A	Abbott	3	4
22 A	Pullman	3	4

WE CAN SHIP FROM STOCK

AMERICAN-STANDARD

IGNITION CABLES

Primary
Secondary
Magneto
Duplex Lighting
Braided—Rubber—Armored

We Own, Make and Market

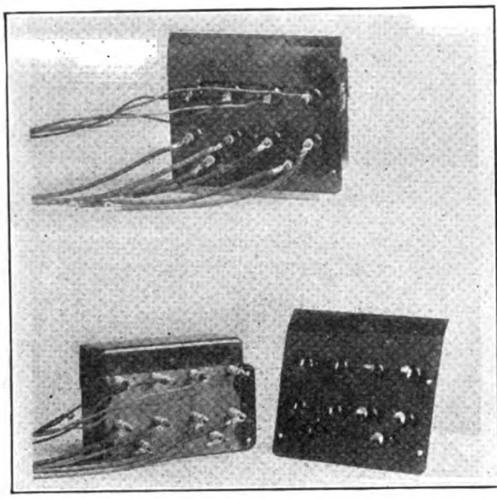
"FAWSCO" Brands
Auto Crawlers
Auto Fuses
Ignition Wire and Assemblies
Lamp Electrifiers
Oil Cock Wrenches
Lennon Light Protectors
Red Seal Spark Plugs

We Distribute

Connecticut Switches
Culver-Stearns Electric Specialties
Eureka Valve Grinding Compound
Fitzgerald Mfg. Co. Gaskets, etc.
Ideal Hose Clamps
Tungsol Auto Lamp Bulbs
Walden-Worcester Wrenches

J. H. FAW, Inc. **37 Warren St. - - NEW YORK**

100% WATER AND MOISTURE PROOF
"CASCO" METAL COIL BOX PROTECTOR
FOR
FORD CARS



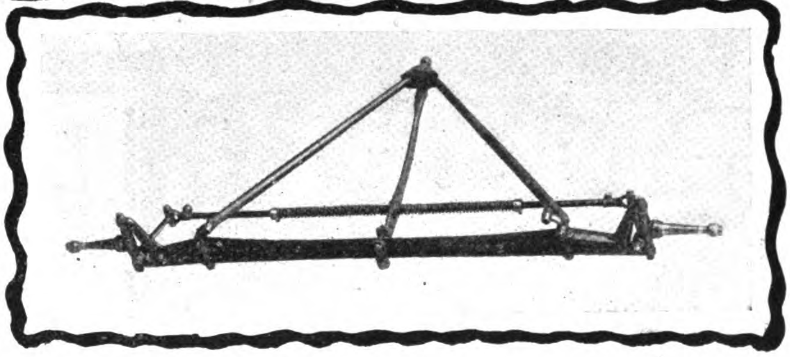
A necessity worth many times the price

IT IS A utility the owner's experience can value
A big economizer of time, labor and expense

The "CASCO" Coil Box Protector obviates 99% of ignition system failures resultant from short circuits, etc., due to water saturation from rain or washing. The coils are positively enclosed but are as easily accessible. The coils need be given no attention once a protector is installed. At a glance the Ford car owner realizes its value. Every owner is a probable buyer. The demand is continuous, not seasonable, the business is certain and the profits are proportionate to your sales promotion.

The unit is sold for $1. Any owner can install it.

"Hold 'Em In the Road"



Has Four Distinct Utilities

Any one of these is worth more to the Ford car owner than the cost of the equipment. The unit serves the purposes of attachments that are necessary for satisfactory and safe car service. These are usually bought separately. The combination is

Radius Rod Brace **Steering Auxiliary**
Axle Support **Anti-Rattler**

List Price $5

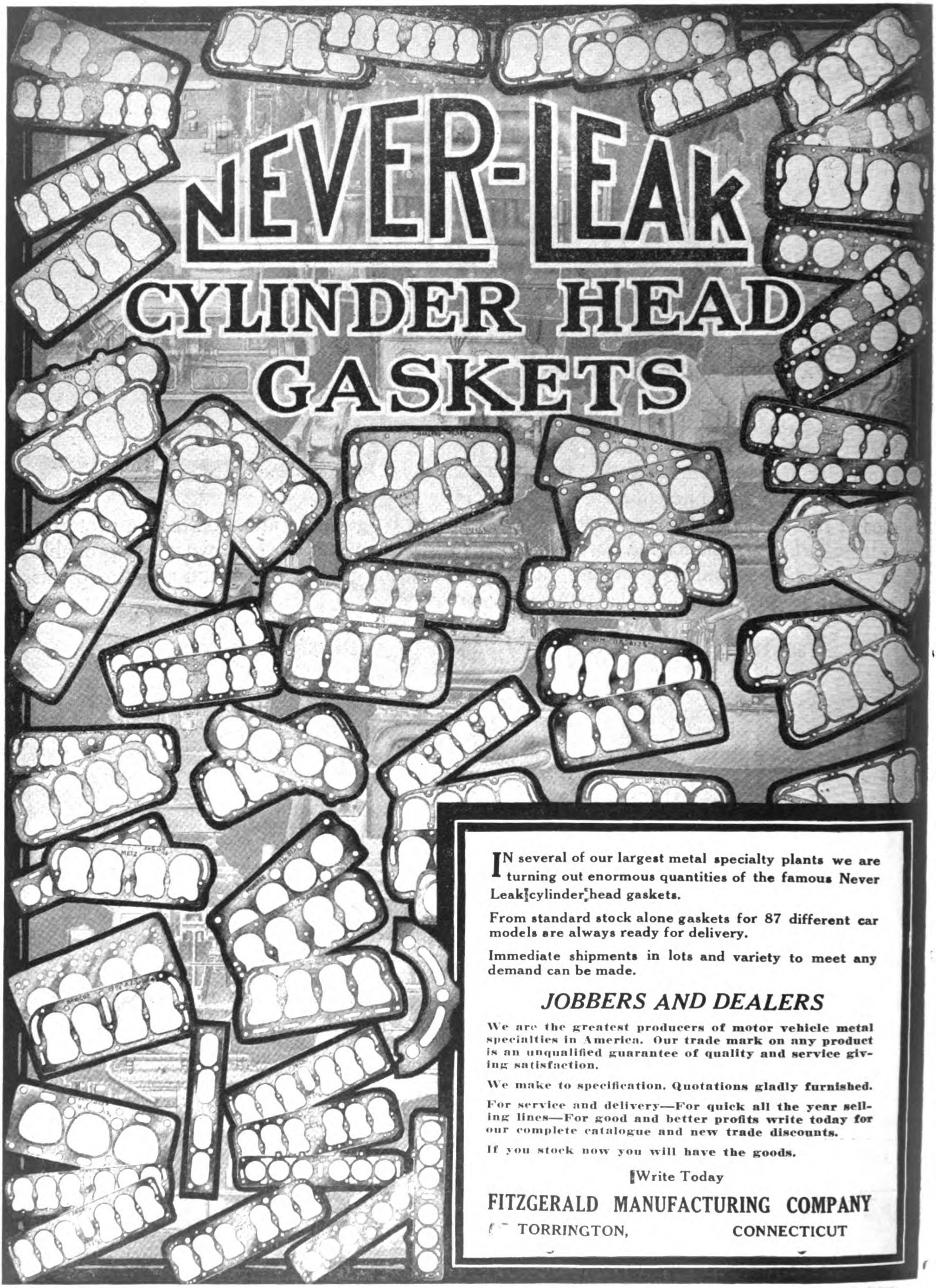
It makes operating control positive. It insures against accidents. It strengthens the steering linkage. It prevents noise. It cannot lose efficiency. It will endure longer than the chassis. It will save many times its cost in repair bills and obviates labor that would be necessary without it. It is necessary if the cars are driven by women. These are the reasons for a demand that has reached a total of thousands a month. There is big business ahead for dealers who want continuous sales with substantial profits.

JOBBERS AND DEALERS

These are the two best selling specialties handled by the trade. There are more than 2,000,000 Ford cars in use. Is there any trade prospect that equals this? Write today for special literature and trade quotations.

Prices Higher West of the Rockies, Canada and Foreign Countries.

COOPER AUTO SUPPLY CO.
THOMASVILLE MANUFACTURERS GEORGIA



IN several of our largest metal specialty plants we are turning out enormous quantities of the famous Never Leak cylinder head gaskets.

From standard stock alone gaskets for 87 different car models are always ready for delivery.

Immediate shipments in lots and variety to meet any demand can be made.

JOBBERS AND DEALERS

We are the greatest producers of motor vehicle metal specialties in America. Our trade mark on any product is an unqualified guarantee of quality and service giving satisfaction.

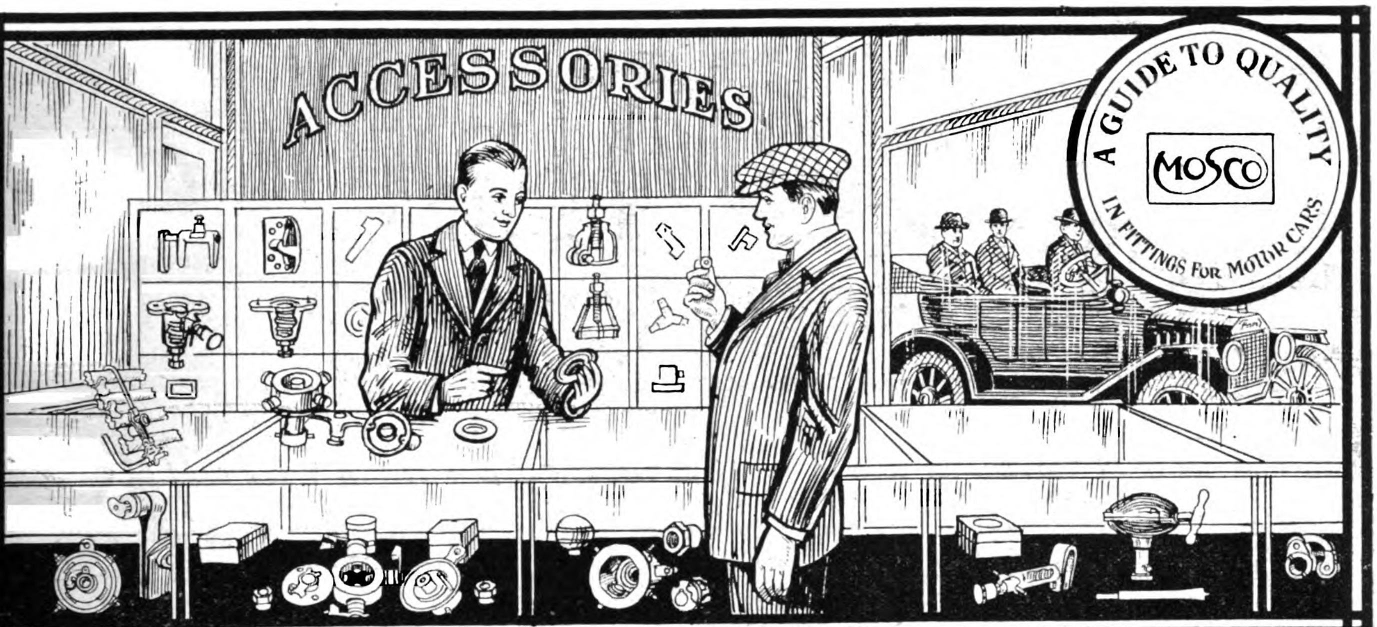
We make to specification. Quotations gladly furnished.

For service and delivery—For quick all the year selling lines—For good and better profits write today for our complete catalogue and new trade discounts.

If you stock now you will have the goods.

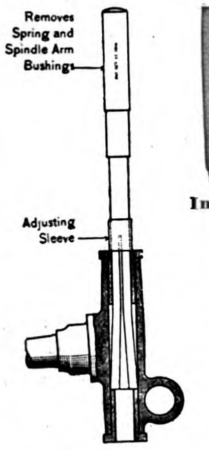
Write Today

FITZGERALD MANUFACTURING COMPANY
TORRINGTON, CONNECTICUT



Universally Used Standard Ford Car Specialties

Sold by All Jobbers and Dealers. Our complete line now ready. Trade marked guaranteed goods.



Mosco Jiffy Bushing Remover

For Ford, Dodge, Dort, Chevrolet, Saxon, Overland and all Cars, Trucks and Tractors having ½" spindle bolt.

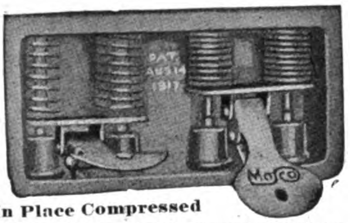
Made of steel, case hardened.

Indispensable to repairman and owner who does his own work.

Pays for itself in a few minutes.

The only tool now in use that will remove steering knuckle, spindle arm and spring bushings.

PRICE, $1.50.



In Place Compressed

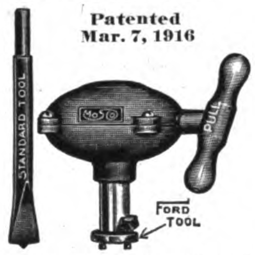
Mosco Valve Spring Compressor for Ford Car

By using this simple device springs can remain in position until grinding of valves is completed.

It compresses two valve springs at one operation and permits removing of pins. Should the pins be crosswise turn valve around until they are in position to pass through slots in compressor. After grinding valves reverse above operation. Made of heavy pressed steel.

PRICE, 50c EACH.

Patented Mar. 7, 1916



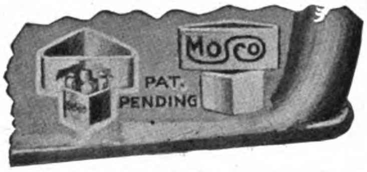
The Mosco Valve Grinder

It renders valve grinding an accurate mechanical operation rather than a guesswork hand job.

It has been found that a much more rapid motion can be obtained with the Mosco Grinder than with the ordinary tool, resulting in a very superior finish on the seats.

It is guaranteed in every respect. It is offered not only as a tool, but as a QUICKER, SAFER and BETTER METHOD of valve grinding.

PRICE, $2.00.



Mosco Socket Nut and Bolt Holder for Ford Car

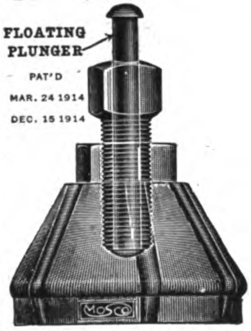
Takes the place of that other man whose help is usually required for this operation.

Simply slip MOSCO Nut and Bolt Holder over the top of each engine or transmission nut or bolt head, the wings protruding above the hex socket engage wall of crank or transmission case and prevent nut or bolt head from turning while the man underneath the car unscrews the bolts.

When replacing put head of bolt on top, slip on the MOSCO socket and proceed as in taking out.

All case hardened; finished bright.

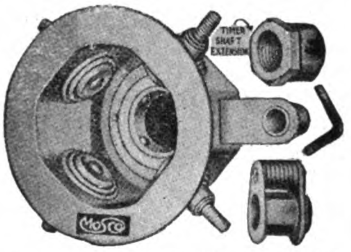
PRICE, 20c EACH.



Mosco Floating Plunger Wheel Puller

Starts a "Frozen" or "Stuck" wheel instantly. Strike the plunger; turn the screw, strike again and the wheel comes off without injury to hub threads, spokes or axle.

Made for 200 models of 45 popular makes of cars.



Improved Bemus Ball Contact Timer for Ford Car

The BEMUS is an IDEAL TIMER for the Ford high speed, short stroke engine, because form of contact is the only one which is correct both electrically and mechanically. This is made by a hardened tool-steel brush, mounted on eccentric cam, engaging spring-pressed steel balls with glancing impact, both the brush and the balls turning each time so that fresh contact surfaces are continually made. The brush comes in contact only with the four balls, touching no other part.

MOUNTING is direct on the time shaft by means of an extension piece which is screw threaded on to shaft, and runs in ball bearing placed in recess of timer shell. This means that each of the balls is equi-distant from the brush. **RESULT**—absolute precision of timing.

PRICE, $2.50.

Patented Oct. 31, 1916

Mosco No. 200 Timer for Ford Car

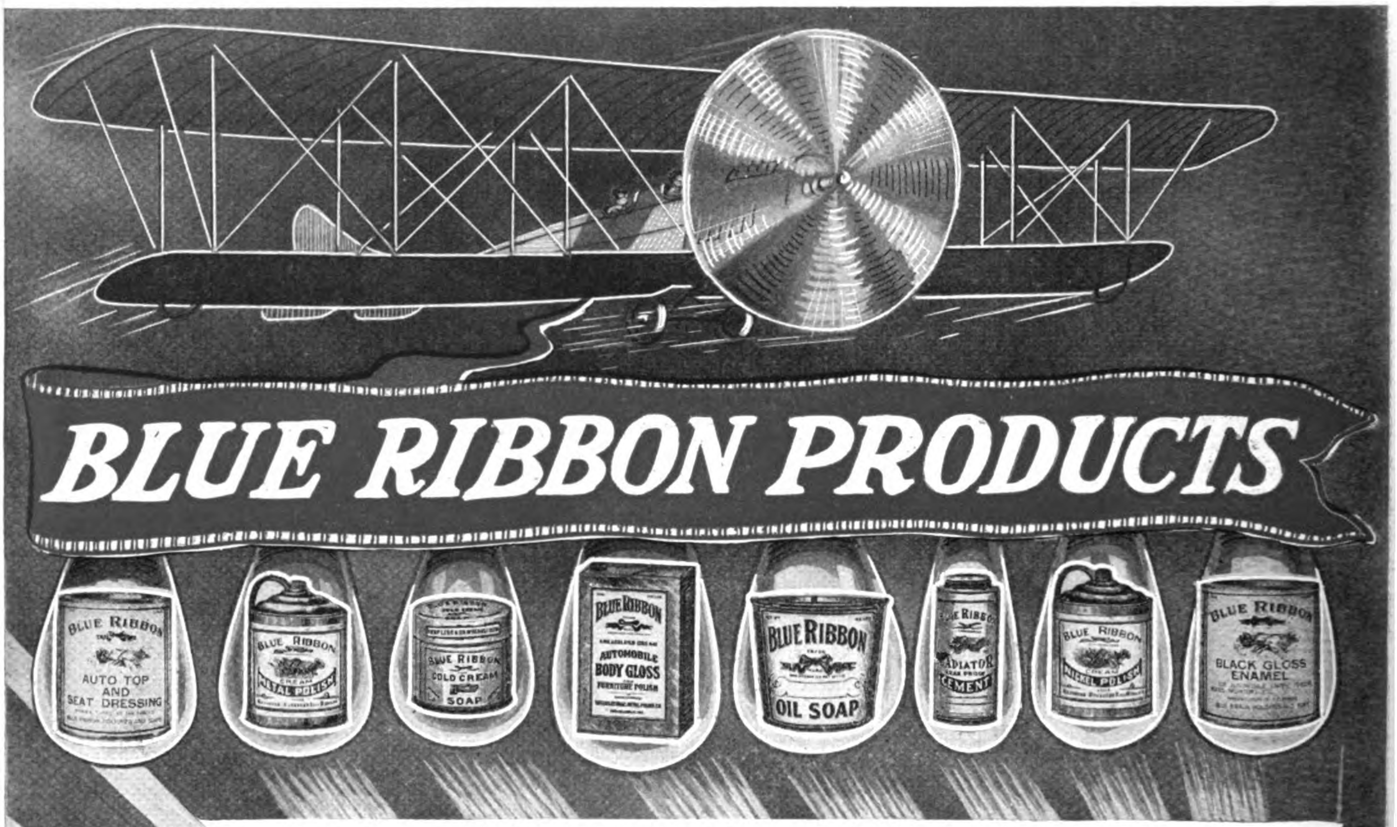
The case is made of extra heavy pressed steel, finished in aluminum. Gray bone fiber is used for raceway, with steel inserts dovetailed in. The threaded terminals are insulated by fibre washers all the way through to contact points, thus removing cause of short circuiting.

PRICE, $1.50.

MOSCO Trade Mark

MOTOR SPECIALTIES COMPANY

WALTHAM, MASSACHUSETTS


BLUE RIBBON PRODUCTS
BLUE RIBBON AUTO TOP AND SEAT DRESSING
BLUE RIBBON METAL POLISH
BLUE RIBBON COLD CREAM SOAP
BLUE RIBBON AUTOMOBILE BODY GLOSS FURNITURE POLISH
BLUE RIBBON OIL SOAP
BLUE RIBBON RADIATOR CEMENT
BLUE RIBBON NICKEL POLISH
BLUE RIBBON BLACK GLOSS ENAMEL

Are a Standard Line

Jobbers and Dealers stock the full Blue Ribbon line as they do all other tried, proven and constantly selling goods.

Blue Ribbon products are made by specialists who depend wholly on the quality and service giving satisfaction afforded by lines bearing their trade mark.

There can be no experimentation at the expense of the consumer, dealer or jobber. All Blue Ribbon Specialties must be as good as they are practical in every day use as it is possible to make them.

A nation wide trade, enormous expenditures devoted to development and promotion work as well as the maintenance and operation of the largest plant of the kind in America is too great a stake to gamble against quality.

Blue Ribbon Products today stand supreme. They are passed over the counters backed by an unqualified guarantee on the part of the trade that can leave no doubt as to their merits.

That is why Blue Ribbon Products are a standard line and will always continue to be so.

That is why all jobbers and dealers sell and list them in their catalogues.

Above all else that is why the consumer buys Blue Ribbon trade marked products. Blue Ribbon Products cost no more than others, yet represent the most profitable line that can be placed by the jobber or dealer.

If the **BLUE RIBBON** trade mark is to be seen on your shelves or counter you have a silent salesman in your store that is always working, always earning.

All Blue Ribbon Specialties are sold in quantities to meet any requirement.

The full line affords a complete line and it pays to specialize in known quality goods.

Blue Ribbon Specialties Include:

Blue Ribbon Cold Cream Hand Soap
Contains no pumice or sand.

Blue Ribbon Leak Proof Cement
A permanent radiator cement.

Blue Ribbon Nickel Polish
For nickel parts and trimmings.

Blue Ribbon Auto Body Gloss
For automobile or furniture.

Blue Ribbon Lightning Carbon Remover
Quick and positive in action.

Blue Ribbon Black Enamel
For lamps, hoods, radiators and metal parts.

Blue Ribbon Auto Top and Seat Dressing
A waterproof dressing that restores tops and seats.

Blue Ribbon Hand-On Patch
A self-vulcanizing patch for shoes and tubes that never fails.

Blue Ribbon Cream Metal Polish
For any metal. An easy, quick working, satisfactory polish.

Blue Ribbon Oil Soap
A pure vegetable oil soap for any purpose. All quality and efficient.

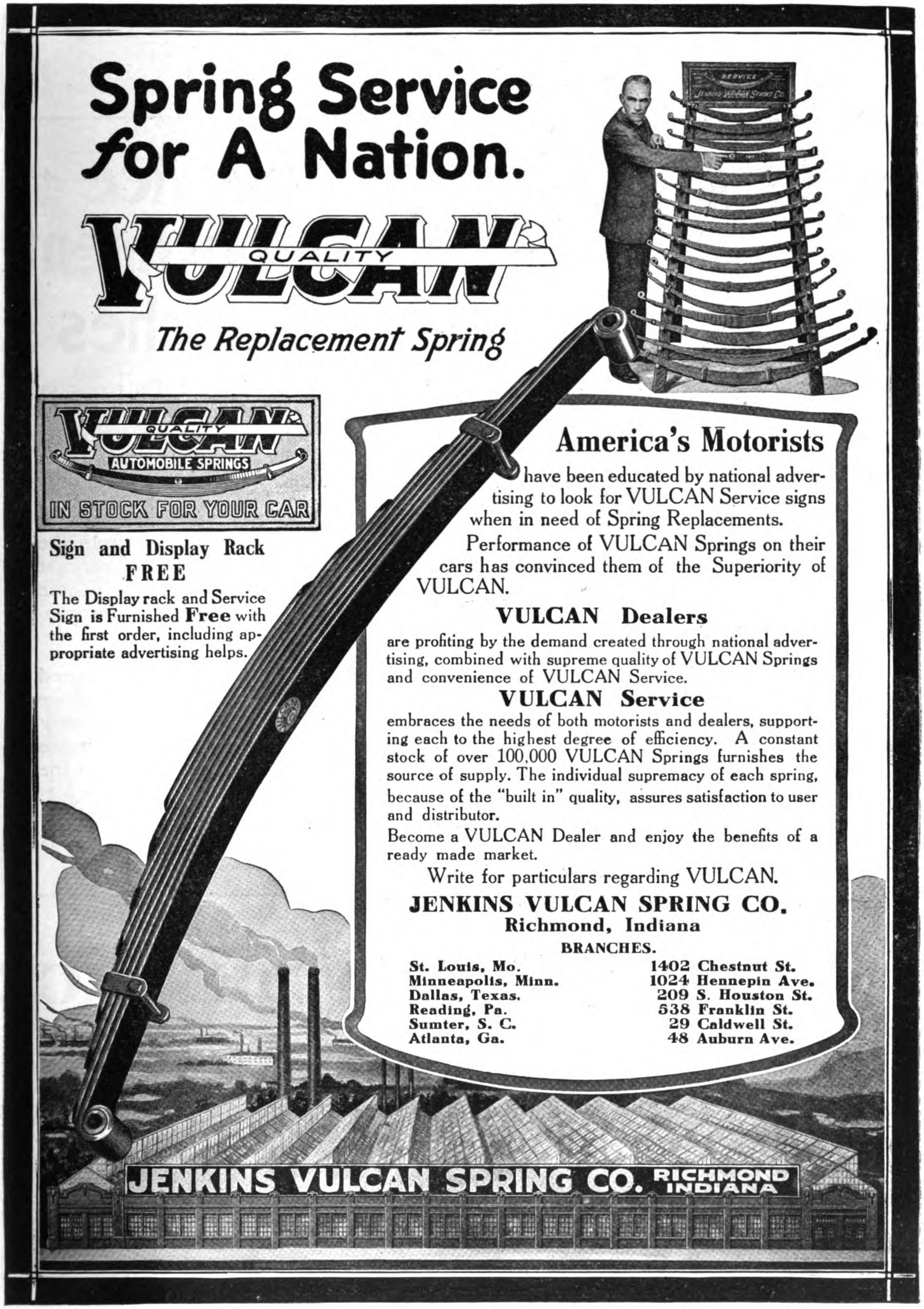
This is the time to consider your winter and spring requirements

Jobbers and Dealers: Prices and discounts at request.

BLUE RIBBON LIQUID RADIATOR CEMENT
BLUE RIBBON Hand on Patch
BLUE RIBBON LIGHTNING CARBON REMOVER

International Metal Polish Co.

INDIANAPOLIS, INDIANA.


SERVICE
JENKINS VULCAN SPRING CO.
JENKINS VULCAN SPRING CO. RICHMOND INDIANA

Spring Service for A Nation.

VULCAN QUALITY

The Replacement Spring

VULCAN QUALITY
AUTOMOBILE SPRINGS
IN STOCK FOR YOUR CAR

Sign and Display Rack FREE

The Display rack and Service Sign is Furnished **Free** with the first order, including appropriate advertising helps.

America's Motorists

have been educated by national advertising to look for VULCAN Service signs when in need of Spring Replacements.

Performance of VULCAN Springs on their cars has convinced them of the Superiority of VULCAN.

VULCAN Dealers

are profiting by the demand created through national advertising, combined with supreme quality of VULCAN Springs and convenience of VULCAN Service.

VULCAN Service

embraces the needs of both motorists and dealers, supporting each to the highest degree of efficiency. A constant stock of over 100,000 VULCAN Springs furnishes the source of supply. The individual supremacy of each spring, because of the "built in" quality, assures satisfaction to user and distributor.

Become a VULCAN Dealer and enjoy the benefits of a ready made market.

Write for particulars regarding VULCAN.

JENKINS VULCAN SPRING CO.
Richmond, Indiana

BRANCHES.

St. Louis, Mo.	**1402 Chestnut St.**
Minneapolis, Minn.	**1024 Hennepin Ave.**
Dallas, Texas.	**209 S. Houston St.**
Reading, Pa.	**538 Franklin St.**
Sumter, S. C.	**29 Caldwell St.**
Atlanta, Ga.	**48 Auburn Ave.**

Delco

Starting, Lighting and Ignition Systems made by The Dayton Engineering Laboratories Company of Dayton, Ohio.

KLAXON

Warning Signals—made by the Klaxon Company of Newark, N. J.

REMY

Starting, Lighting and Ignition Systems made by the Remy Electric Company of Anderson, Ind.

Service Department Branches

When in need of a repair or the replacement of a part—the motorist has but one desire—to get the *correct* part, without delay.

Formerly it was necessary to get this service direct from the factory, but *now*, you can get direct factory service at the United Motors Service Incorporated branches.

This company was organized to handle the entire field service of the Delco, Klaxon and Remy organizations. Here you are assured genuine parts, and the service is rendered by expert factory-trained workmen, qualified to make necessary adjustments quickly and correctly.

UNITED MOTORS SERVICE
INCORPORATED

Service Department of the Above Companies

***General Offices:* Detroit, Michigan**

Detroit
Chicago
Denver

Boston
Atlanta
New York

MOTORS SERVICE
TRADE MARK

Cleveland
Kansas City

Minneapolis
Los Angeles

San Francisco

Be-Be-Co
TRADE MARK
CUSHION DRESSING
BOSTON BLACKING Co.
SPECIALTY DEPARTMENT
CAMBRIDGE, MASS.

BE-BE-CO

TRADE MARK

IT PAYS TO SATISFY

The extreme in car appearance is now demanded by all owners. When buying specialties that will afford the results, they willingly pay for the quality products that will satisfy them.

The jobber or dealer who sells inferior goods cannot long retain his, standing and prestige. Car specialties made just to sell will never bring or hold patronage or add to the profits of a dealer.

Be-Be-Co
TRADE MARK
LEATHER TOP DRESSING
BOSTON BLACKING Co.
SPECIALTY DEPARTMENT
CAMBRIDGE, MASS.

The trade can always recommend and sell the trade mark BE-BE-CO'S car specialties. The customer' s car will retain its new appearance and once served with the tried and proven BE-BE-CO'S product, no other will satisfy.

The BE-BE-CO'S specialties are supreme. They are the products of specialists who have developed a world wide business—who have built their reputation on the quality of what they offer today. BE-BE-CO'S specialties are sold wherever cars are used.

There is a BE-BE-CO'S specialty for almost every car need. All of the same sterling quality and merit—extremely easy to apply and affording quick and enduring results.

Be-Be-Co
TRADE MARK
SEAT & SLIP COVER CLEANER
BOSTON BLACKING Co.
SPECIALTY DEPARTMENT
CAMBRIDGE, MASS.

BE-BE-CO

TRADE MARK

BE-BE-CO MOHAIR TOP DRESSING is an especially prepared finish for mohair tops, curtains and slip covers. It gives a dark, silky lustre to faded and dingy mohair. Will never come off. One application makes a faded top look like new.

BE-BE-CO LEATHER TOP DRESSING will make a worn and leaky top look like new. It is absolutely waterproof and fast black. It will not crack or chip off. There is another full season's wear to a top if this dressing is used.

BE-BE-CO SEAT AND SLIP COVER CLEANER is something new in accessories. It makes dirt, grease and stains disappear in short order. The autoist does not have to take the covers off the car. This is as necessary in a garage as Old Dutch Cleanser in a kitchen.

Be-Be-Co
TRADE MARK
MOHAIR TOP DRESSING
BOSTON BLACKING Co.
SPECIALTY DEPARTMENT
CAMBRIDGE, MASS.

BE-BE-CO CUSHION DRESSING will make cushions look like new without leaving the cheap, painty appearance of ordinary dressings. It makes upholstery last longer and always looks trim. Our business for twenty-nine years has been in making dressings, preservatives and dyes for leather.

(Sold in sealed containers—Pints, Quarts and larger packages.)

Manufactured Exclusively by the Specialty Department of the

BOSTON BLACKING COMPANY

Home Office: THIRD STREET, EAST CAMBRIDGE, MASS.

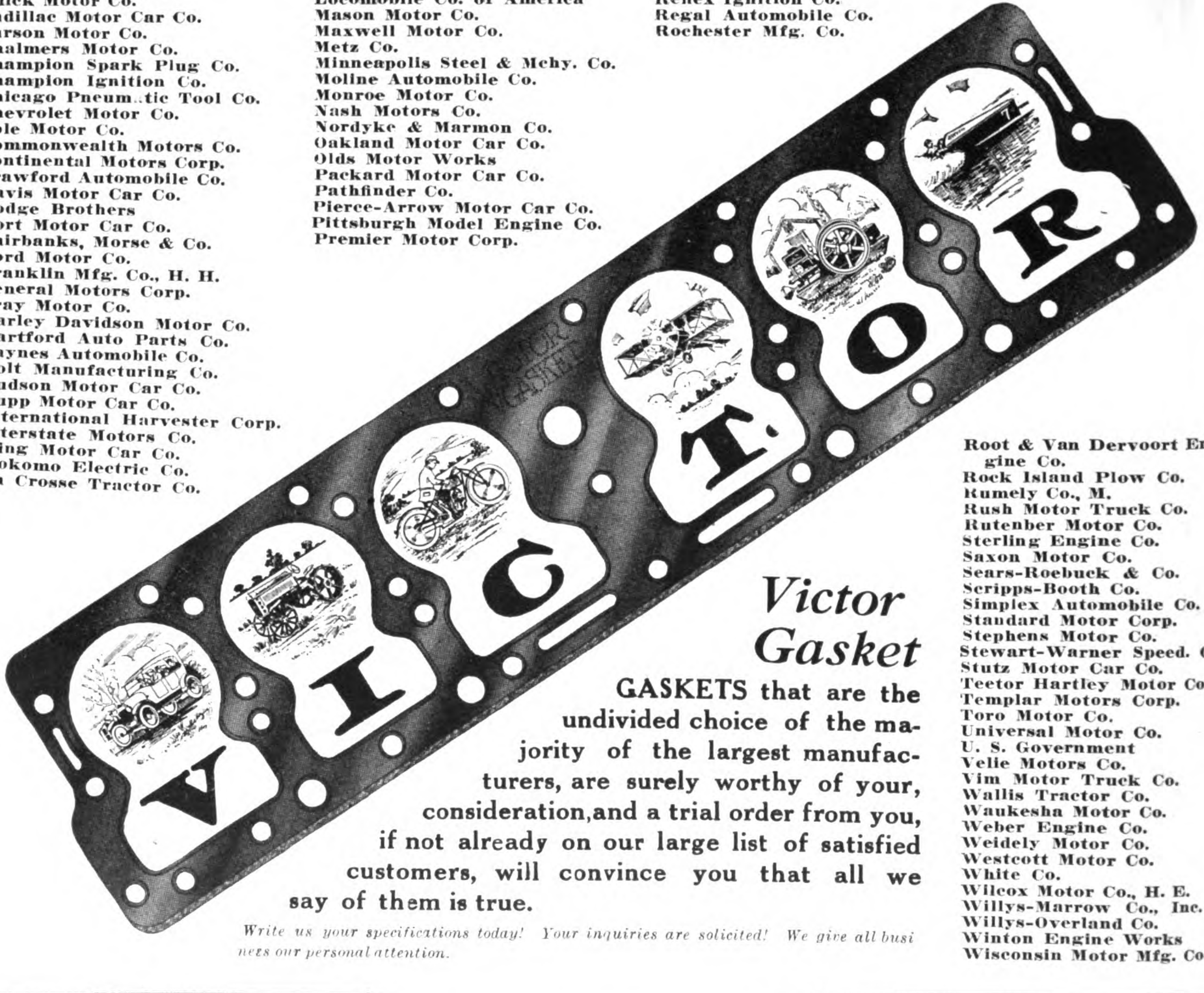
Branch Offices and Warerooms in All Large Cities in United States and Abroad.

PURE LAKE SUPERIOR COPPER and HIGHEST QUALITY ASBESTOS ARE USED EXCLUSIVELY IN

VICTOR GASKETS

Accepted as the standard by the following manufacturers:

Belvidere Screw & Machine Works
Briscoe Motor Corp.
Buick Motor Co.
Cadillac Motor Car Co.
Carson Motor Co.
Chalmers Motor Co.
Champion Spark Plug Co.
Champion Ignition Co.
Chicago Pneumatic Tool Co.
Chevrolet Motor Co.
Cole Motor Co.
Commonwealth Motors Co.
Continental Motors Corp.
Crawford Automobile Co.
Davis Motor Car Co.
Dodge Brothers
Dort Motor Car Co.
Fairbanks, Morse & Co.
Ford Motor Co.
Franklin Mfg. Co., H. H.
General Motors Corp.
Gray Motor Co.
Harley Davidson Motor Co.
Hartford Auto Parts Co.
Haynes Automobile Co.
Holt Manufacturing Co.
Hudson Motor Car Co.
Hupp Motor Car Co.
International Harvester Corp.
Interstate Motors Co.
King Motor Car Co.
Kokomo Electric Co.
La Crosse Tractor Co.
Lexington Motor Mfg. Co.
Light Motor Mfg. Co.
Lincoln Motors Co.
Locomobile Co. of America
Mason Motor Co.
Maxwell Motor Co.
Metz Co.
Minneapolis Steel & Mchy. Co.
Moline Automobile Co.
Monroe Motor Co.
Nash Motors Co.
Nordyke & Marmon Co.
Oakland Motor Car Co.
Olds Motor Works
Packard Motor Car Co.
Pathfinder Co.
Pierce-Arrow Motor Car Co.
Pittsburgh Model Engine Co.
Premier Motor Corp.
Pullman Motor Car Co.
Rajah Auto Supply Co.
Randall Faichney Co.
Reflex Ignition Co.
Regal Automobile Co.
Rochester Mfg. Co.
Root & Van Dervoort Engine Co.
Rock Island Plow Co.
Rumely Co., M.
Rush Motor Truck Co.
Rutenber Motor Co.
Sterling Engine Co.
Saxon Motor Co.
Sears-Roebuck & Co.
Scripps-Booth Co.
Simplex Automobile Co.
Standard Motor Corp.
Stephens Motor Co.
Stewart-Warner Speed. Co.
Stutz Motor Car Co.
Teetor Hartley Motor Co.
Templar Motors Corp.
Toro Motor Co.
Universal Motor Co.
U. S. Government
Velie Motors Co.
Vim Motor Truck Co.
Wallis Tractor Co.
Waukesha Motor Co.
Weber Engine Co.
Weidely Motor Co.
Westcott Motor Co.
White Co.
Wilcox Motor Co., H. E.
Willys-Marrow Co., Inc.
Willys-Overland Co.
Winton Engine Works
Wisconsin Motor Mfg. Co.



Victor Gasket

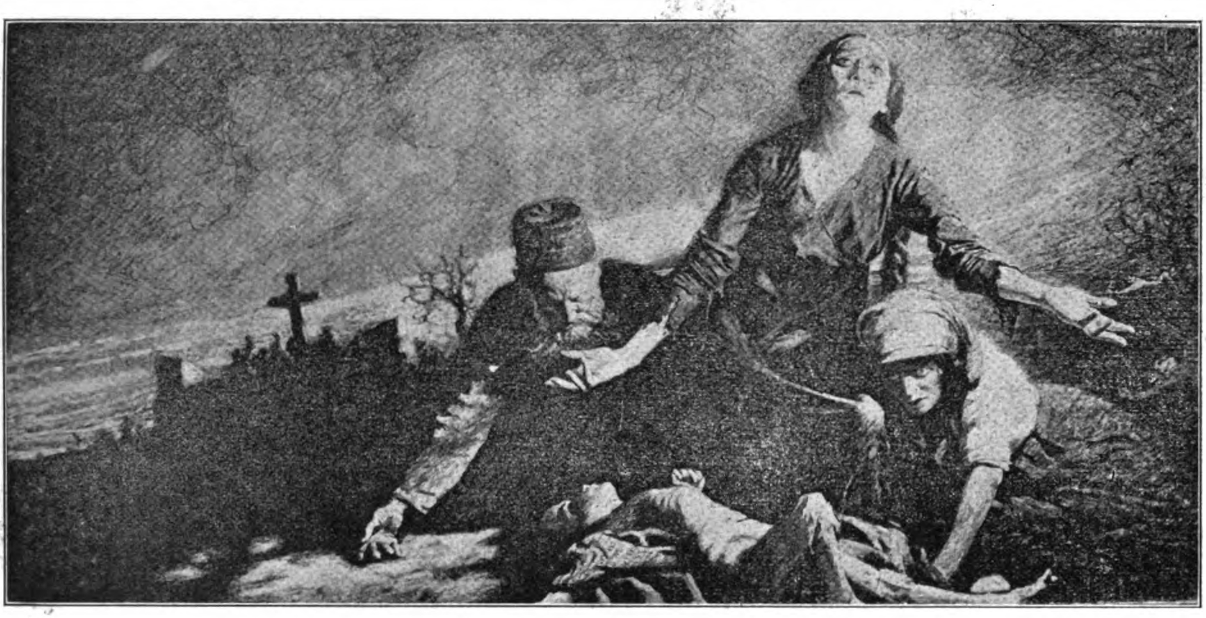
GASKETS that are the undivided choice of the majority of the largest manufacturers, are surely worthy of your consideration, and a trial order from you, if not already on our large list of satisfied customers, will convince you that all we say of them is true.

Write us your specifications today! Your inquiries are solicited! We give all business our personal attention.

VICTOR MFG. & GASKET CO.,

• WORLDS LARGEST GASKET MANUFACTURERS •

TROY & 21st, STS., CHICAGO, U.S.A.



In the Name of Pity—Give!

Oh, America of the great heart, the cry of the stricken peoples of the Near East is heard at your door.

You have been so close to us through all the years of our struggles toward the light. Your hands outstretched to us have never been empty.

And now we cry to you from the depths of a greater need than even our torn souls have ever known. In the name of pity—do not fail us!

There has been cruel suffering in our lands, massacre, famine, death. But the spirit of our people still lives, and calls to you across the sea to send help lest we perish.

Our God is your God, and we bare our souls for your searching eyes that you may see how we have never denied Him, nor shamed Him. When our world rocked in misery about us, in our torn and tortured bodies our hearts still cradled and sheltered the crucified Christ. We held true in our allegiance to God and humanity.

The people of the Near East are old in suffering. The way we have traveled has been Via Dolorosa, the way of tears and blood. And now—we are so low in the dust that only your young, unshattered strength can raise us.

Every dollar subscribed goes to the Relief Work.
All expenses are privately met.
All funds are cabled through the Department of State.
All funds are distributed through U. S. Consuls or American Agencies.
Our Government is prevented from giving aid.
The Red Cross is not organized for Relief Work in these sections.

This Space Contributed by
The Automobile Journal Publishing Co.

Around the world the news has gone, is ringing today clarion-clear that America's men and America's women have never yet been called upon in vain to right a wrong, to protect the weak, to succor the defenseless. We cry to you, help us—America! We are Armenian, Syrian, Greek, Jew, and we speak strange tongues, but our need of you is so great. What is left of our children are starving. What is left of our men and women, young men and maidens, are without work, without shelter, without clothing, racked with disease. Open your great hearts and give, and our people will pay. In years to come, how they will pay in return! You, who are so safe and strong beyond the reach of such misery as ours, open your heart to our cry.

17c a day—$5 a month—$60 a year will buy life for one of us.

In the name of Pity—give!

Campaign for $30,000,000

Make Contributions Payable to CLEVELAND H. DODGE, Treasurer

American Committee for Relief in the Near East

(Formerly American Committee Armenian-Syrian Relief)

One Madison Avenue, NEW YORK CITY

Look Over The Ford Cars Layed Up For Repairs

REPAIR SHOP

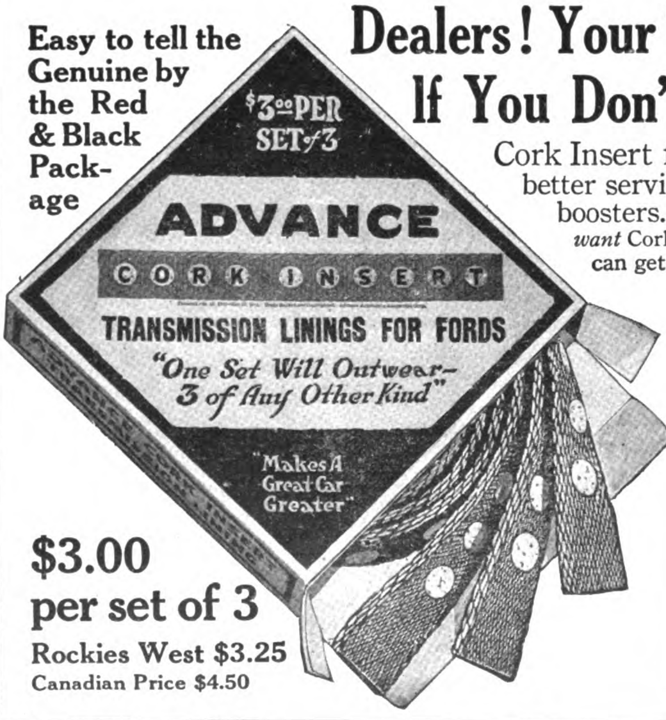
Why are they laid up? Most frequently it's *rear end trouble.* What causes it? Transmission linings that grab and slip—producing heavy vibration and terrific strain on the rear axle.

Cork Insert Transmission Linings *save the Ford rear end.* They work with velvety smoothness. Eliminate the grab and slip—the vibration and the strain. They prolong greatly the life of the car and avoid repair bills. Next time your Ford needs new linings, remember to say

CORK INSERT
TRANSMISSION LINING FOR FORDS

Over 500,000 Ford owners have found new pleasure and economy in driving their Fords, because of Cork Insert. It gives smooth stopping and starting, and a sure brake that you can get nowhere else.

Easy to tell the Genuine by the Red & Black Package


$3.00 PER SET of 3
ADVANCE
CORK INSERT
TRANSMISSION LININGS FOR FORDS
"One Set Will Outwear—3 of Any Other Kind"
"Makes A Great Car Greater"

$3.00 per set of 3

Rockies West $3.25

Canadian Price $4.50

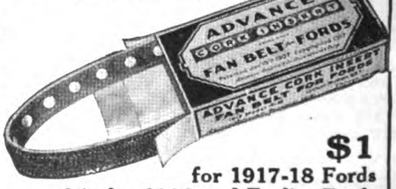
Dealers! Your Trade May Go ELSEWHERE If You Don't Give Them Cork Insert

Cork Insert fills a need that no other lining fills. It gives better service. That spells *satisfaction.* Cork Insert users are boosters. Your trade are hearing of them every day. They *want* Cork Insert. Pushing Cork Insert will bring you *new* trade. You can get Cork Insert in a few hours—*every jobber handles it.*

Advance Automobile Accessories Corp.
Dept. A3, 56 E. Randolph St., Chicago

Cork Insert Fan Belts for Fords

don't have to run tight to prevent slipping, like ordinary belts. The corks insure no-slip efficiency. This, plus its durable construction, means extra long wear and economy.



$1
for 1917-18 Fords
85c for 1916 and Earlier Fords
Canadian Prices: 1917-18 Models $1.50
Earlier Models $1.25

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., JANUARY, 1919 No. 9

NEW YORK AND CHICAGO VEHICLE SHOWS SURE SUCCESSES

Have Generous Support from Industry and Surprising Lists of Exhibitors—Many Events Will Attract Manufacturers, Dealers and Owners During Show Periods

FOR years the National Automobile Chamber of Commerce has organized both the Chicago and New York automobile shows. The original shows in New York City were promoted by the Automobile Club of America, first as club events, and then this body joined with the Association of Licensed Automobile Manufacturers and the character and proportions of these shows were changed until they became recognized as "national," this largely from the fact that the industry represented by the association was regarded as approving the exhibitions.

Charles M. Brown, President, Automobile Dealers' Association of New York City.

The first New York shows were intended to benefit the treasury of a club, and when the exhibitions were held jointly the profits were shared by the two organizations. Later the association decided that it would organize and promote the New York show because it was profitable, and then the club joined with the so-called "independent" group of manufacturers, which refused to recognize the Selden patent, and for several years the metropolis had two shows.

When the Selden patent was invalidated by adjudication there was a reorganization of the Association of Licensed Automobile Manufacturers, nearly all interests of the industry being eligible for membership, and the National Automobile Chamber of Comemrce was formed. What had taken place in New York City impelled the A. L. A. M. to acquire control of the Chicago show, which had been conducted by an association of dealers, and while there had never been conditions paralleling those existing in New York City, there never was serious opposition to the association taking over the Chicago exhibition and promoting it and making it as profitable as was practically possible.

For years the New York show was organized and operated by a show committee, but in Chicago Samuel A. Miles had managed the event practically from the time that the2 shows were instituted. Then the association placed the New York show under Mr. Miles' direction and since then until this year Mr. Miles has been occupied with the management of both exhibitions.

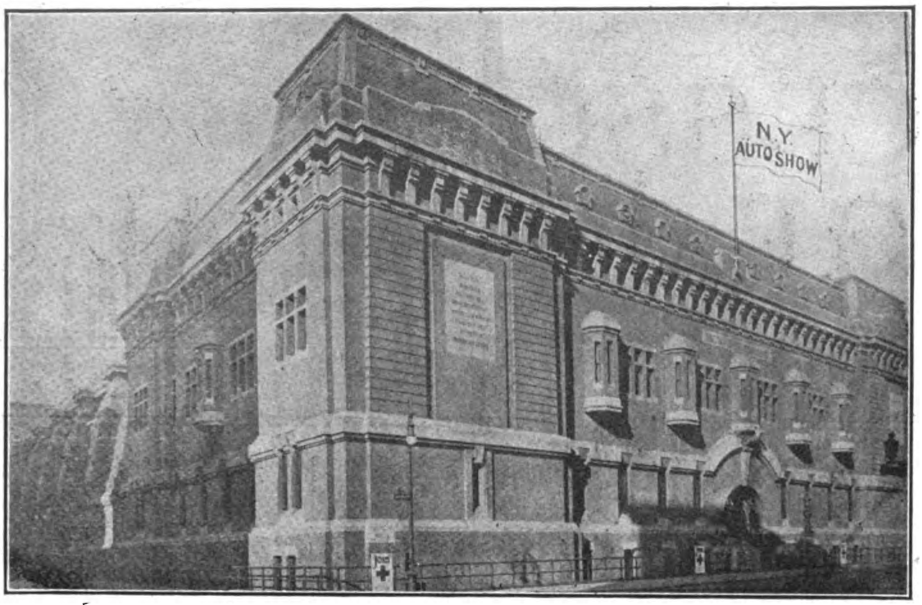
The National Automobile Chamber of Commerce has always regarded the New York and Chicago shows as "national" in that it, with allied associations, refused to sanction some other exhibitions, those who exhibited at the unsanctioned shows doing so with the prospect of being debarred as exhibitors at the "national" shows, which were believed to be the largest and the most productive from the viewpoint of the exhibitor.

There can be no denial of the fact that some of the so-called dealers' shows were very large, and that they were profitable to the organizations promoting them. But the National Automobile Chamber of Commerce dominated the power vehicle shows to a much larger degree than would appear on the surface from the fact that the members agreed to be bound by any decision with reference to exhibitions.

Charles M. Larson, Chairman, Show Committee, Automobile Dealers' Association of New York City.

Last Truck Shows in 1913.

The National Automobile Chamber of Commerce held its last truck shows in New York and Chicago in 1913. Since that time it has refused to sanction exhibitions of power trucks, although there has been innumerable proposals and not



The 69th Regiment Armory, New York City, in Which One Division of the Passenger Car and Truck Shows Will Be Housed from Feb. 1 to 15.

a little agitation in the industry and the trade to promoting such shows. Many reasons have been stated to justify this opposition to truck exhibitions. The association has always held that passenger car shows were essential and that these were deserving of encouragement. At the other hand the exhibition of trucks was not believed to be productive of sufficient results to justify the additional expense or organization and promotion.

Various reasons have been stated as reflecting the attitude of the National Automobile Chamber of Commerce, among these being that truck shows held jointly with passenger car exhibits were overshadowed by the car departments and the return financially was certain to be poor; that holding a truck show at the conclusion of a passenger car show was ill advised from the fact that practically all local interest was lost; that to expect the truck dealers (who in some instances were also passenger car dealers) to take the time that would be required for such a show from their business was unreasonable and expensive; that truck buying was influenced by existing transportation needs and not by any special demonstration that would be practically possible at a show; that there was an unnecessary burden upon the manufacturers and their sales organizations, as well as the expense incidental to representation.

All or any of these reasons may have had weight in the decision of the National Automobile Chamber of Commerce six years ago when the number of trucks in use in America was comparatively small. Perhaps the conditions resulting from the European war and the subsequent participation of the United States in the conflict may have all influenced decision. The industrial and commercial uncertainty and the need of readjustment of industry to meet post-war conditions may have been ample foundation of the recommendation for the association that no shows be held during the present year.

Dealers Insisted on Shows.

There can be no criticism of the sincerity of the members of the association who voted on the recommendation, but there could be no greater divergence of opinion that is represented by the action of the sales representatives of these same manufacturers in deciding to organize, promote and finance the exhibitions that the industry desired should be abandoned.

The cessation of hostilities in so short a period before the usual season for exhibitions allowed litle time for preparation and forced extreme activity on the part of the Automobile Dealers' Association of New York and the Chicago Automobile Trades Association. Not only this, conditions had materially changed in New York City, for the Grand Central Palace had been acquired by the Du Pont interests and was converted into an army hospital and was no longer available.

Limited Time Not an Obstacle.

One might assume that this and the fact that a manager of long experience with automobile shows was not obtainable would be discouraging. Not so, however, with the New York association, which first voted not only to have a passenger car exhibition, but to follow this with a show of trucks. Next it appointed a show committee headed by C. H. Lar-

(Continued on Page 48c.)

N.Y. AUTO SHOW

Madison Square Garden, New York City, in Which the Main Division of the Passenger Car and Truck Shows Will Be Located from Feb. 1 to 15, Where the Automobile Shows Were Held for a Number of Years.

MATHEY BROS., Inc., SOLID TIRE SERVICE

A. Edward Mathey, Originator of Dealing in "Used Truck Tires" and Manager of the Boston Branch.

AFFORDING tire service on a different basis than any other concern in the country, Mathey Bros., Inc., Boston, Providence and New York, has developed a business of large proportions in a very short period. The company defines its operations as "tire jobbing," but it is not engaged in "jobbing" in the generally accepted sense, for it is supplying equipment to buyers at prices that are not governed by prevailing market values, and affording a service to truck owners that is guaranteed to give satisfaction.

The concern is incorporated under the Massachusetts laws by A. Edward Mathey and F. A. Mathey. The Mathey brothers have had much experience with tire manufacturing, selling and service, being with some of the best known concerns and in business for more than 10 years. Edward A. has been associated with the Kelly-Springfield Tire Co., the Diamond Rubber Co., the Firestone Tire and Rubber Co., the Hartford Rubber Works Co., the Swinehart Tire and Rubber Co., and the Gibney Tire and Rubber Co., and F. A. was with the Kelly-Springfield Tire Co. and was engaged in business as a tire dealer at Manchester, N. H., for six years.

The present business was developed by Edward A. Mathey, who was in charge of a service station operated by a tire company in Boston. He had to deal with truck owners and drivers and realized that tire service meant much to them. He was impressed by the actual loss to truck owners in tires on machines that were "junked." Trucks that were in such mechanical condition that they were beyond practical restoration were usually disposed of for small prices, the chief value to the buyers being what they might obtain for metal scrap or the occasional sale of parts.

Tires Sold as Junk a Direct Loss.

But whether or not the trucks could be moved by their own power, or were valueless for freightage, practically all had tires, ranging in condition from nearly new to well worn. These tires had varying service life remaining, and generally the guaranteed mileage had not been reached. Invariably the tires were sold with the trucks to junk men, which was direct loss to the owners, for their condition added little if any to the values fixed by the buyers. With the purpose of increasing his income Mr. Mathey bought all tires he believed were saleable, pressed them from the wheels and sold them as "used solid truck tires." In a short time he found that he could sell all the tires he could obtain and he decided to devote his time exclusively to "used tire jobbing."

In August, 1917, he resigned his work and established himself in a store at 62 Sudbury street, where he had desk room, a telephone and storage space for perhaps 50 tires. He advertised in a small way locally that he dealt in "Used Solid Truck Tires," and very rapidly developed patronage. He could sell for from $20 to $25 a tire that was actually worth in service life from $45 to $90, and he guaranteed to give to customers more miles for the dollar than they could obtain from new tires, which was proven to be true in almost every instance.

He found that truck owners were looking for tire economy and were willing to accept used tires on the basis they were sold, understanding they were taking the judgment of a business man who advised them conservatively and expected to have them continue as customers. Soon Mr. Mathey's big problem was obtaining tires, for the demand exceeded the sources of supply then available and much time was necessary in visiting junk men and buyers of unserviceable trucks and buying shoes that might be saleable.

F. A. Mathey, Manager of the New York Branch of Mathey Bros., Inc.

A Section of the Stock Room of Mathey Bros., Inc., at 76 Cummington Street, Boston, Where 3000 or More Tires Are Usually on Hand.

Press of Business Established Company.

He made a proposition to his brother to join with him in business and a partnership was formed, F. A. Mathey undertaking the office work and stock room selling, while A. Edward Mathey solicited business from owners and bought tires wherever they could be found. This made a very practical combination, but the business was small and was confined to Boston and its suburbs.

Then opportunity "knocked." A concern that had manufactured truck tires for years was bought by a large company that until that time had not manufactured a solid tire. The buying company, which purposed to continue manufacturing solid tires under its own name in the plant it had purchased, wanted to dispose of the tires it had acquired in the merger, so that it could begin business with its own trade marked products, and it offered all of the stock for sale at a price that was much lower than the prevailing market value.

Bought Direct from Factories.

This was a real proposition, for the price was for all the tires at the factory, about 1600, and necessitated a large investment. The tires were all fresh made and there were comparatively few that were not first quality. This was the initial handling of new tires, and as these had been bought so they could be sold considerably below the prices they would have brought in normal conditions, a different selling plan was necessary. There was no disposition to discontinue dealing in used tires, but there were numerous opportunities to obtain tires that were slightly imperfect. One of the chief causes of tire imperfection is what is known as "mould blemish," because of the tread or side adhering to the mould while curing, causing marks or scars that do not lessen the wearing quality, but detract from the appearance and value in the mind of the average buyer.

Blemished Tires Generally Good.

Such tires are put aside by inspectors. They cannot be sold for standard prices, and there would be considerable loss were the manufacturers to "scrap" and reclaim them, so the factories generally sell these for what may be termed "best offers," the buyers disposing of them after the names of the makers have been removed. There are no guarantees with such tires unless the buyers will assume responsibility for wear. Usually such tires are sold "as is" and truck owners purchasing them expect to pay comparatively lower prices if they are not guaranteed mileage.

Besides what may be classed as "blemished" tires, discontinued styles and sizes and occasionally surplus stock are sold by manufacturers, and the tires are bought by dealers who expect to "job" them. The greater part of these tires are standard from every point of view, but not guaranteed, and are sold without the name and trade marks of the makers. Handling tires that might in trade parlance be termed "seconds" has been engaged in for years, but these had always been sold by dealers who bought from jobbers, and there was no assumption of responsibility and no attempt to afford service.

Demand for Tire Service.

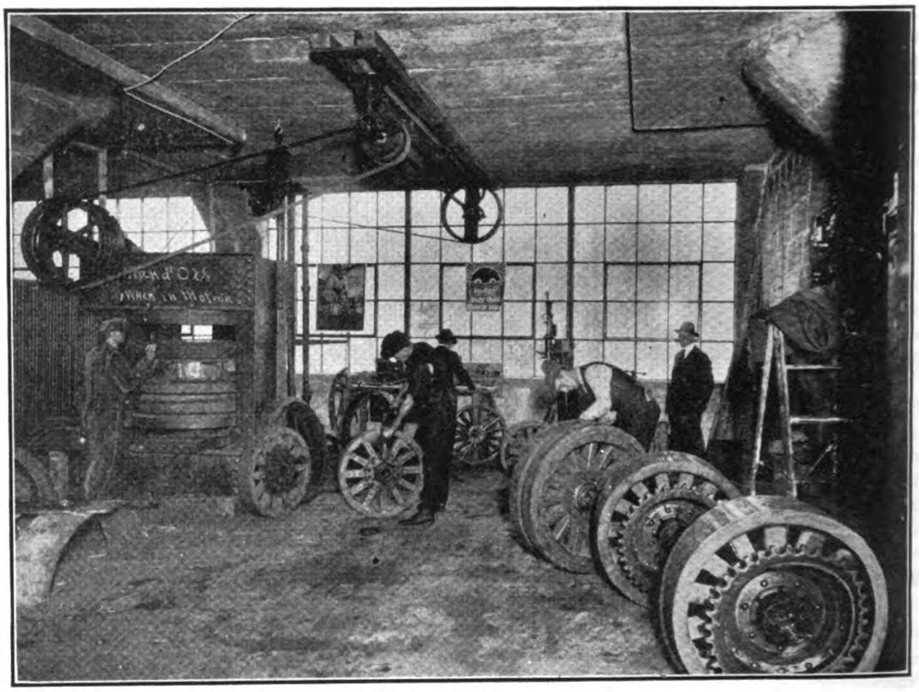
Mathey Bros. believed that by operating a tire service station in connection with their business they would attract more customers, and that they could retain them by fair dealings and insuring full values for the prices paid. This would increase the market for tires. The chief inducement for customers would be the low prices and the character of the service.

While the project to establish a service station was under consideration the company had opportunity to buy a car load of tires, which was taken advantage of. Next a contract was made to take from one of the largest tire companies all overstock, discontinued styles, types, government rejects and blemished stock, and a month later a similar contract was made with another company. Mathey Bros. is now receiving about 600 tires a month from three different factories and the market for these has steadily increased.

Larger Quarters in Boston.

Having insured a certain supply of tires the company removed from Sudbury street to 76 Cummington street, where a lease was made for sales and stock rooms having a floor area of more than 5000 square feet, and a service station was established that has equipment for handling every type and size of truck tire made. The service station was operated practically continuous, or at least all of the time necessary to meet the requirements of customers, and a campaign was begun to attract business from truck owners within a radius of about 50 miles of Boston. This campaign was very successful and the company determined to establish a branch in Providence. The patronage at this branch was such that the company next established a branch in New York City at 506-508 West 45th street, and with it an up-to-date day and night service station.

While the fact that the company sells tires at prices that are lower than the market prices for standard makes, types and sizes has attracted buyers, the service to truck owners is intended to afford a very large time economy. Though the condition of tires can be easily observed, the general desire of owners is to obtain the greatest possible mileage and replacement is seldom made until the need is imperative. Renewals ought to be made as a rule before the tires are worn close to the rims because the main protection of the truck mechanism is the cushion between the rims of the wheels and the highways. Where the vehicles are used on smooth surfaces, such as asphalt, there is less deterioration than on other surfacings.



Part of the Boston Service Station of Mathey Bros., Inc., Showing the 400-Ton Pressure Capacity Hydraulic Press Used for Demounting and Remounting Tires on Trucks.

Value of Quick Work to Owners.

Few truck owners want tire replacements made during working hours, for this would mean loss of service, and, of course, shrinkage in working time that might be productive. The continuous operation of the Mathey service stations is to do work during hours the machines would ordinarily be idle. But that there shall be as great time economy as is possible during business hours of the day equipment has been installed and methods have been devised for removal and replacement of tires of the pressed on type that are exceedingly attractive to truck owners. For instance, the Mathey shops have records of removing forward wheels, pressing off an old tire and installing a new tire, and remounting the wheel in seven minutes. The same work can be done with rear wheels and dual tires in 45 minutes. This may appear to be extremely rapid work, and statement is made that save in rare instances the time for tire changes will be approximately as specified. Such results, however, cannot be obtained save with well trained workers and special equipment.

With reference to service both of the Mathey brothers affirm that this is quite as important as supplying tires. The demountable type of tire was designed so that the owner of the truck could furnish his own service, buying the tire and having it shipped by express, or delivered, and then making the change, but fully 90 per cent. of the owners would drive miles to a station to have a demountable tire removed. On arrival there might be delay from other jobs in waiting. Largely from this reason the demountable tire was not an advantage to the owner.

Economy Necessitates Good Equipment.

Now that the pressed-on type of tire is installed by practically all vehicle manufacturers, the truck owner has to consider the possibility of delays, because of work to be done before he can be served. The tires must be removed by hydraulic presses, new tires installed, and the wheels demounted and remounted. Service can only be given by having equipment and men of experience to handle the work. The tire bases may be rusted to the wheel rims and the presses must be of capacity to exert extremely heavy pressure. The men must be trained to do their work systematically and efficiently, as Mr. Mathey puts it, as though the work were for a fire department and the vehicle was needed in the quickest time possible.

Service also depends upon the office force, which must see that the order is supplied the shop from the stock room. Time can be wasted surprisingly unless there is system and organization. The greasing is made without extra charge, as is the examination of the wheels for alignment and the condition of the axles. Much excessive wear of tires results from misalignment of the wheels and from sprung axles. Assuming a truck equipped with 36 by five-inch dual rear tires and the same size single tires forward. Should one of the rear tires fail generally two new shoes are installed. The one good tire may have several thousands miles wear, but it is generally "junked." The Mathey plan is to tag it with the customer's name and use it on a front wheel when needed. This is a considerable economy, for the used tire may give good service for a long time on a front wheel.

Some Features of "Mathey Service."

There is much to be said of shop equipment and its value to the customer. Truck wheels of largest size weigh as much as 1500 pounds each and two men are needed when using a chain hoist to lift them to the press tables. The Mathey service stations are equipped with means so that one man can handle the heaviest wheels and do it in much less time than two men can do the work. This is a big saving in cost and in time to all customers.

Out of town customers may ship wheels to the company by express and new tires will be installed and the wheels shipped back the same day, the company paying the express charge one way. Or, if there is a tire press in the vicinity of the customer's garage or place of business, tires can be shipped by express to them and local men can install them generally at a cost of $2 a tire. The company also has a stock of old but strong wheels, and should a wheel be received with a loose hub or otherwise in poor condition, the hub can be removed and placed in one of the stock wheels so that the truck owner can have returned a wheel that will give entirely satisfactory service at a very small cost compared with the purchase of a new wheel.

The Boston branch and service station is in charge of A. Edward Mathey, who has three salesmen in touch with truck owners. The New York branch is managed by F. A. Mathey, who has two outside salesmen, and the Providence branch is directed by C. A. Golden. The company intends to establish branches in Philadelphia and Chicago within a comparatively short time. The present stock carried in the three branches ranges from 7000 to 8000 tires of five different makes.

Much of the success of the company has been due to its consistent advertising to truck owners, and statement is made by it that in its advertising in MOTOR TRUCK is has developed business with customers as far south as Texas and as far west as the State of Washington. This also established the fact that the company has customers in all sections of the country.

OPENED WESTERN OFFICE.

The Lancaster Steel Products Co., Chicago, Ill., has opened a western office in charge of Frank N. Adgate, who has been connected with the mills. The office is located in the United Motors building at 2715 South Michigan avenue.

S. M. WILLIAMS PRESIDENT OF HIGHWAYS INDUSTRIES ASSOCIATION.

The Highways Industries Association at its annual meeting held recently reelected S. M. Williams as president. Mr. Williams is associated with the Garford Motor Truck Co. Other officers elected were: First vice president, G. P. Coleman, chief engineer, highways department, West Virginia; second vice president, E. J. Mehren, editor, Engineering News-Record; third vice president, Charles J. Lang; secretary and treasurer, H. G. Shirley; directors, class A membership, W. P. Blair, National Paving Brick Association; A. T. Rhode, Granite Pavement Block Manufacturers' Association; E. J. Mehren, National Association Asphalt Block Manufacturers; W. T. White, N. A. C. C.; directors, two years, W. E. Metzger, E. J. Sutton, A. P. Sanders, Philip Koehring; directors, three years, H. J. Love, W. O. Rutherford, A. N. Johnson, S. F. Beatty. David S. Ludlum, president of the Autocar Co., Ardmore, Pa., was elected to class B membership. The following national associations have made application for class A membership: National Vitrified Pipe Manufacturers' Association, the Lime Association.

S. A. E. MAKES BIG GAIN IN MEMBERSHIP.

The Society of Automotive Engineers gained 717 members during the past year. The membership at the close of the year was 3780, including affiliate membership representatives and enrolled students, but not section associates. During the year 900 applications for membership were received, as compared with 1400 in 1917, but the percentage of applicants who qualified increased from 72 per cent. in 1917 to 84 per cent. last year. The council of the society has approved for various grades of membership 313 applicants and also one for student enrollment.

The following committees were appointed to the Standards Committee Divisions: Berne Nadall (miscellaneous), Lieut.-Col. V. E. Clark (aeronautic), Wayne H. Worthington (tractor). President Kettering was appointed to represent the society on the advisory committee of the Engineering Division of the National Research Council.

PRATT IS FISK SPECIAL REPRESENTATIVE.

Claude Pratt has become a special factory representative for the Fisk Rubber Co., Chicopee Falls, Mass., to which position he was promoted from the management of the central district. He will continue to have headquarters at the Chicago branch. Joseph P. Ripley, who has been in charge of the Washington office, succeeds him.

AYERS MADE DISTRICT MANAGER.

H. J. Ayers has been appointed by the Rainier Motor Corporation district manager in New York and the New England states, and T. L. Briggs has been made district manager for the middle west.

HIGHWAY HAULAGE BEFORE NATIONAL CONGRESS.

Transportation will be the principal topic discussed at the 14th convention of the National Rivers and Harbors Congress in Washington, Feb. 5, 6 and 7. Most of the time will be given to the discussion of questions relating not only to waterways, but also to railways and highways and to their mutual inter relations.

The official call issued by President Joseph E. Randall states:

"The fundamental purpose of the convention will be, not to urge appropriations for new projects, but to promote the enactment and enforcement of legislation which will secure the harmonious development and complete coordination of all the agencies of transportation."

Under the caption of "The Way to Prosperity and Power," the official call for the convention contains the following:

"Continued commercial supremacy and sustained military efficiency are based upon industrial development—and industrial development depends on efficient transportation. The United States can never utilize all its resources or attain the wealth, the power, the position of primacy among the nations of the earth which it ought to hold until we shall create a transportation system in which the highway, which carries most widely, the railway, which carries most swiftly, and the waterway, which carries most cheaply, are harmoniously developed and permanently established upon a basis of constructive cooperation instead or destructive competition. In the effort to secure this result we solicit the sympathy and the support of every loyal American."

NEW WHOLESALE PRICES FOR PETROLEUM AT LONDON.

New wholesale prices for petroleum products have been arranged by the London Board of Trade. The prices, which are already effective, are as follows:

Gas oil in bulk at wharf, 17 cents per imperial gallon.

Fuel oil in bulk at wharf, $48.67 per ton.

From Jan. 1, 1919: Spirit in cans—Aviation, 77 cents; special boiling points, 72 cents; No. 1, 70 cents; No. 2, 68 cents; No. 3, 66 cents; kerosene—long time burning oil, in bulk, 30 cents; No. 1, 30 cents; No. 2, 28 cents; raw white spirit ungraded and unrefined, to manufacturers, 55 cents.

All except where otherwise specified are per imperial gallon, which is equal to 1.2 United States gallons.

SELDEN COMPANY'S DIVIDENDS.

A dividend of five per cent. on first preferred, payable Jan. 2, and a quarterly dividend of two per cent., payable to stockholders of record as of Jan. 2, 1919, have been declared by the Selden Truck Sales Co., Rochester, N. Y. It was announced that shipments of trucks for the month ending Dec. 7 were 28 per cent. larger than for any previous month in the last two years.

Personal News of the Industry in Brief

H. W. Clark, formerly in the advertising service department of the McGraw-Hill Publishing Co., in Chicago, has become manager of advertising for the Chicago Pneumatic Tool Co., Chicago, Ill.

Lieut. S. G. Hoffman has been dismissed from the aviation service and is back at his plant. He is president of the S. G. Hoffman Magneto Co., St. Louis, Mo.

Charles A. Marien has become associated with the H. & H. Machine Co., St. Louis, Mo., as vice president. Mr. Marien was formerly superintendent of the Anheuser-Busch Brewery Garage, which cares for more than 100 trucks and cars of many makes.

Sergt. Max A. Wiltinsyein has rejoined the Wellington Motor Car Co.'s staff in St. Louis. He was recently discharged from the Machine Gun Officers' School at Camp Hancock, Ga.

Ralph P. Greene has resigned his position with the Motor Car Equipment Co., Boston, to accept the management of the accessory department of the Wetmore Savage Co., Boston.

Homer Hilton, for some years identified with automobile advertising in the eastern and middle west trade circles, has been made sales and advertising manager of the Oshkosh Motor Truck Manufacturing Co., Oshkosh, Wis. The company manufactures four-wheel drive trucks.

Frederick W. McIntosh, who was formerly with the Clemms Auto Co., Des Moines, Ia., is now located at Philadelphia, Pa., as sales manager of the Nash Motor Co. Mr. McIntosh resigned from the Des Moines organization to join the Y. M. C. A. in its army work.

John E. Genn died at his home Dec. 15. He was one of the first 10 members of the Stewart-Warner organization. His position there was successively that of engineer, assistant chief engineer, chief inspector and chief engineer. The latter he held at the time of his death.

Fred N. Coates, for six years in the sales department of Willys-Overland, Inc., has resigned to accept a position in the sales department of the Chevrolet Motor Co. He expects to be located at the Chevrolet New York headquarters, 57th street and Broadway.

W. E. Carpenter has sailed for England and will devote his time in gathering data as to the field there for American tractors. He is manager of the tractor department of the Allied Foreign Trade Corporation.

George Simons, associated with the Edison Storage Battery Co. for the past three years, has been appointed district sales manager of their Detroit district. He succeeds Bertram Smith, who has gone to the main office at Orange, N. J. Mr. Simons has had valuable experience in storage battery practise and previous to his coming to the Edison Storage Battery Co. was for nine years associated with the old National Battery Co., Buffalo, N. Y., and the United States Lighting and Heating Co.

G. W. Werden is now export manager of the Denby Motor Truck, Detroit. His headquarters are in New York City.

A. W. Tyler has been elected vice president and general manager of the C. A. S. Products, succeeding the late James W. Graham.

A. Z. Zimmerman has resigned as treasurer and director of the Continental Motors Corporation, Detroit, Mich. He is succeeded by G. W. Yeoman, who has been elected treasurer of the corporation, and who will continue to act as director of sales and advertising. W. R. Angell was elected assistant treasurer and a director.

L. E. Trent has been appointed secretary and general manager of the Common Sense Gas Tractor Co., Minneapolis, Minn. He succeeds H. W. Adams.

B. W. Knowles is now chief engineer of the Baker R. & L. Co., Cleveland, O. He was formerly chief engineer and factory superintendent of the Electric Products Co. maker of battery charging apparatus.

Gard Gale has become associated as general sales manager of the Commerce Motor Truck Co., Detroit. Mr. Gale was a member of the firm of Eastman & Gale, Indianapolis, Ind., distributor of Dort cars and Commerce trucks.

T. T. Fauntleroy has assumed the duties of sales manager for the Lakewood Engineering Co., Cleveland, O. His headquarters are in Philadelphia. He was formerly New York branch manager for the Gurney Ball Bearing Co. and later manager of the central sales district for the same company.

P. H. Garber has resigned as manager of the Peoria, Ill., branch of the J. I. Case Co. to take a position as sales manager for the Illinois Silo and Tractor Co., Bloomington, Ill.

Lieut. T. W. Cushing has returned to his duties as vice president and sales manager of the Malbohm Motors Co., Racine, Wis.

Prescott C. Ritchie, western representative of the Westinghouse motor car equipment department, has moved his headquarters from Indianapolis, Ind., to Chicago.

A. C. Stebbins has been appointed general manager of the Auto Body Co., Lansing, Mich., succeeding H. E. Bradner.

E. G. Gunn has become assistant engineer for the Packard Motor Car Co., Detroit, Mich. For a number of years he has been identified with the Northway Motor and Manufacturing Co., Detroit; the Premier Motor Corporation, Indianapolis, Ind., and in other designing work.

Capt. Edgar L. Vail will soon return to his work as head of the Automobile Equipment Division of the Waltham Watch Co., Waltham, Mass. He is now stationed at Boston and is serving on the Adjustment Board straightening up government contract relations.

Charles O. Rowe will have charge of the Philadelphia branch office of the Hess Steel Corporation. The office is to be at 517 Widener building.

Ralph E. Keller, who was formerly general manager and vice president of the Martin V. Kelly Co., has become western manager of Frank Seaman, Inc., and will make his headquarters at the Chicago office. In addition to the Studebaker, the Seaman agency handles such accounts as the General Electric Co., Hess-Bright and S. K. F. Ball Bearing, H. W. Johns Manville and Republic truck. Mr. Keller has had long experience and is thoroughly suited to the work of carrying on the western development of the Seaman business in the way that it is planned.

H. C. Dunning is now production manager for the William Small Co., Indianapolis, Ind., which recently took over the manufacture of the Monroe. He has had 12 years of manufacturing experience, having been identified at different times with the Chevrolet Motor Co. and the C. A. S. Engineering Co., all of Flint, Mich. Mr. Dunning was also factory manager of the Chevrolet Co.

Charles Miller, formerly associated with the Miami Cycle and Manufacturing Co. at Mittletown, O., has joined the Willys-Overland forces as assistant to C. O. Miniger, vice president in charge of production.

E. I. Danaher has been released from the machine gun service in the U. S. army and will rejoin the Newell Co. Before joining the army he was secretary of the company.

O. J. Rhode has been promoted to the office of vice president and general manager of the Wire Wheel Corporation of America, controlling all company branches and export. He will be located at Buffalo.

Robert L. McCrea is now associated with the Cadillac Automobile Co., succeeding H. W. Spalding, who takes charge of the Chevrolet retail distribution in St. Louis. Mr. McCrea has sold Packards for 14 years.

Horace N. Trumbull has been dismissed from the Engineers Officers' Training School at Camp A. A. Humphreys, Va., and has been appointed advertising manager of the Wellman-Seaver-Morgan Co. of Cleveland, O. Before entering the service Mr. Trumbull was advertising manager of the SKF Ball Bearing Co., Hartford, Conn.

Norman S. Ross is now in charge of the new San Francisco office of the Wellman-Seaver-Morgan Co., at 415-417 Rialto building. Mr. Ross will give prompt attention to business originating from California, Nevada west of the 115th meridian, lower California and the counties of Josephine, Jackson and Klamath in Oregon.

Leo N. Burnett has been released from active service in the navy and returns to the Cadillac Motor Car Co. He will have charge of the advertising department. John A. Cleary took Mr. Burnett's position for the duration of the war and came from the Automobile Sales Corporation, Philadelphia, Pa., and has again taken up his duties as sales promotion manager of the concern.

Charles B. Ennis is now general manager of the Anderson Motor Sales Co. He was formerly sales manager of the company.

Lieut.-Col. J. A. Mars has been appointed as director of the Bureau of Aircraft Production. He takes the position of W. C. Potter, who was acting director.

E. J. Copeland has become vice president and general manager of the Kelvinator Corporation, Detroit, manufacturer of Kelvinator refrigerating units. For eight years he has been associated with the General Motors interests in the capacity of purchasing agent. A. H. Goss, formerly associated with Chevrolet interests, is vice president of the company.

T. J. Turk has resigned as assistant general manager of the Inter-State Automobile Co. He was formerly connected with the Kissel Motor Car Co. and the General Motors Truck Co. He was the designer of the present Inter-State model.

Frank B. Ruoff has been appointed manager of the Klaxon general sales office, a new office opened in Detroit. Headquarters will be at 3066 West Grand boulevard. He was for several years in charge of the Detroit territory for the Klaxon company, Newark, N. J.

Roger J. Gilmore is now president of the Packard Motor Car Co. of New York. Since 1909 Mr. Gilmore has been with the Packard.

H. C. Gorman is now assistant in the patent research department of the National Automobile Chamber of Commerce. Mr. Gorman was formerly connected with the Motor Transport Corporation.

Pablo Homs has become associated as assistant foreign sales manager of the Cleveland Tractor Co., Cleveland, O. He has been identified with the sales of agricultural implements, automobiles and trucks in foreign fields since 1901 and will further the sales of the tractor in Russia, Scandinavia, Holland, Dutch East and West Indies, Spain, Portugal, Japan, China, Manchuria, the Philippines and Corea.

Geo. H. Treviranus will assume the duties of sales manager of the Gemco Manufacturing Co., Milwaukee, to succeed L. A. Raasch, who has resigned to become affiliated with Walden-Worcester, Inc., Worcester, Mass. Mr. Treviranus is thoroughly conversant with the Gemco policy from having been the advertising and export manager during the past 2½ years. He previously conducted for five years sales campaigns for the Evinrude Motor Co., who are the manufacturers of the famous detachable row boat motor.

T. B. Fogg has been appointed branch supervisor of the Garford Motor Truck Co., Lima, O., and is head of a new department of supervision.

H. Jerry Hall has left the Mechanical Belt Co. and has entered business for himself as the Jerry Hall Tire Co., St. Joseph, Mich.

W. L. Towne has become associated with the advertising force of the General Electric Co. at Schenectady. His duties will be very important and under the direction of F. H. Gale, advertising manager. Mr. Towne has been advertising manager of J. Austin Co. of Cleveland.

Frank E. Wing, Agent for Hurlburt Trucks.

Frank E. Wing, Boston, Mass., who has handled the Marmon for many years and recently took over the Hurlburt truck, has moved from Commonwealth avenue to a new building on Boylston street, at the entrance of the Fenway. The new quarters provide space enough for displaying the trucks.

F. J. Pardee has assumed the duties of western sales manager of the Diamond T Motor Car Co. and will open headquarters in San Francisco. For the past three years he has been general sales manager for the company at Chicago. A. J. Whipple, who has been a special representative of the company in Washington, D. C., has been made general sales manager.

William Ryan has been appointed sales manager of the Ford Motor Co., Detroit. He succeeds Norval A. Hawkins, who will give his attention to the foreign business of the company. P. E. Martin has been appointed general superintendent. He has been with the company since the first Ford car was assembled.

Milton J. Budlong announces his retirement as vice president and general manager of Gaston, Williams & Wigmore, and as vice president of the Globe line of steamships. He has been for many years president of the New York, Philadelphia and Boston Packard companies. Mr. Budling is well known to all the veterans in the automotive industry.

Milton J. Budlong, Former Vice President of Gaston, Williams & Wigmore.

Leo Lunenschloss has been promoted to the position of foreign sales agent of the Avery Co., Peoria, Ill. For six years he was manager of the principal Wisconsin sales office of the company. He is succeeded by R. B. Lyman, Watertown, S. D., as manager at Madison.

Herman N. Karp, one of the pioneers of the automobile industry, has opened a show room at 1676 Broadway. A full selection of used cars will be shown and Mr. Karp will specialize in the sale of the better grades of used cars.

E. B. Jones has assumed the duties as manager of the New York branch of the Firestone Tire and Rubber Co. of Akron, O. Mr. Jones possesses great executive ability and is well versed in the tire business. He was formerly a salesman in the Philadelphia Firestone branch, later assuming the management of the Brooklyn branch. Mr. Jones succeeds E. D. Studebaker, who was manager of the New York branch for five years.

Willard N. Love will become sales manager for the Johnson Automobile Co., St. Louis, Mo. He has been doing special work on war contracts.

Bert Leroux has joined the sales force of the Grasser Motor Co. to sell Oldsmobiles in Toledo, O. For several years Mr. Leroux has been connected with the sale of Overland cars. Later he was connected with the sales end of the Bliss Auto Co.

A. G. Cameron has been promoted to manager of the trade in Australasia. He has been manager of the Goodyear Tire and Rubber Co.'s branch in St. Louis. He will spend several months each year in the southern seas.

Honor Blocker, who has been assistant for the past two years, has been appointed advertising manager of the Republic Rubber Corporation. Mr. Blocker has made a marked impression in the advertising field.

John R. Eustis has been appointed secretary of the Metropolitan Consulate, one of the bureaus of the American Automobile Association. He is widely known in New York and has the task for many years to popularize the Importers' Salon at Hotel Astor during the New York Automobile Show. A. L. Westgard, transcontinental and touring authority, has been added to the staff of the A. A. A. Touring Bureau.

William Cairns has retired from active connection with the Detroit Pressed Steel Co., Detroit, Mich. He was general manager and is widely known among automobile parts producers. Mr. Cairns will take a rest during the winter at St. Petersburg.

P. S. Anderson, St. Louis, Mo., has been released from the Motor Transport Division and has resumed his former position as sales manager for the Packard Missouri Motor Co.

Earl Moore is now sales manager for the Superior Motor Car Co., St. Louis, Mo.

S. R. Jones has assumed the duties as district manager for the Moon Motor Car Co. in Eastern Missouri and Central and Southern Illinois. For several years he has been recognized in the motor industry.

TO JOURNAL SUBSCRIBERS

In the following pages you will find listed, priced and described, a large number of articles that are used generally by vehicle owners. With hardly an exception jobbers and dealers can supply any of the parts, fittings, accessories, equipment, machinery, or tools dealt with.

The first installment of similar articles was published in October issue of Accessory & Garage Journal. In the following numbers of this magazine many hundreds of these descriptions will be published and this great feature will be continued until practically all standard lines produced will be described.

In connection with the last installment a complete index will be published, giving issue and page number of the journal in which the articles and description was published. If prices or delivery conditions change in the meantime corrections will be made in the final index.

By retaining all numbers subscribers will have the most complete catalogue of desirable car equipment ever issued. It will have all the good features of a trade directory, a buyer's guide and a trade reference book.

Owing to new publishing requirements back copies of the Journal can not be supplied and we earnestly request all subscribers to file and retain copies.

IN THE FEBRUARY NUMBER OF THIS MAGAZINE 200 ARTICLES WILL BE DEALT WITH AND SPECIAL ATTENTION WILL BE GIVEN TO EQUIPMENT THAT WILL ADD TO THE CONVENIENCE AND COMFORT IN THE USE OF CARS DURING THE WINTER SEASON.

Owing to the uncertainty in securing material to this time it has been almost impossible for many manufacturers to be specific in stating delivery dates. By referring to articles you will find stated at the end of practically all descriptions the delivery conditions. When that detail is not mentioned it is assumed that any reasonable demand can be taken care of promptly.

Directory of Automobile Accessories, Parts and Supplies, with Descriptions, Illustrations and Prices

This is the fourth part of the directory of accessories, parts, fittings, machinery, tools, equipment and supplies which is being published in the Automobile Journal and Accessory and Garage Journal. Articles that are now in production or which are being carried in stock and that can be secured by jobbers and dealers are described and illustrated, and the prices and delivery conditions are stated.

This information, which can be obtained through no other medium, is being compiled from the most recent advices direct from manufacturers.

Several thousand articles will be described in this way in the forthcoming issues of the two publications up to the opening of the Spring season. In the descriptions given, where no mention is made of the maker's ability to deliver goods, it is to be assumed that the same situation would exist as under normal conditions and that the article would be procurable, subject to the transportation and manufacturing considerations of the present time.

Owing to present publishing conditions, extra copies cannot be supplied, so subscription orders should be placed at once.

Air Pressure Controller—Brunner Mfg. Co., Utica, N. Y. 29

The Ajax Touring Refrigerator—Ajax Trunk and Sample Case Co., 144-150 West 18th St., New York 39

The Akron-Williams Tire Rebuilding Stand—Williams Foundry and Machine Co., Akron, O. 31

Automobile Bucket—Martin Mfg. Co., Lancaster, O. 35

Auto Heel Rest for Fords—J. L. Lucas & Son, Bridgeport, Conn. 29

Automatic Light Bulb Case—Dover Stamping and Mfg. Co., Cambridge, Mass. 38

The Badger "Two-Wheel Drive" Differential—Lewis Differential Co., Milwaukee, Wis. 38

The Bailey Ball Thrust Bearing—Ahlberg Bearing Co., 2636 Michigan Ave., Chicago, Ill. 27

Banker Windshield—Banker Windshield Co., Pittsburgh, Pa. 34

Beach Bushing Press—Greb Co., 202 State St., Boston, Mass. 30

The Beach Universal Rim Tool—Greb Co., 175 State St., Boston, Mass. 24

Braender Tires—Braender Rubber and Tire Co., Chicago, Ill. 25

Britton Drain Cocks—Peter A. Frasse & Co., 417-421 Canal St., New York. . . . 26

The Brunner Air Compressor—Brunner Mfg. Co., Utica, N. Y. 25

Buffington Folding Chair—C. A. Buffington & Co., Berkshire, N. Y. 33

The Cathedral Bell—Cathedral Bell Mfg. Co., Baltimore, Md. 39

Century Cigar Lighter—Mabey's Electric and Mfg. Co., Indianapolis, Ind. 34

Columbia Gasoline Filter—Columbia Gasoline Filter Co., Inc., 30 Beach St., Boston, Mass. 26

Comco Auto Lock—Combination Auto Lock Co., 1134 Chestnut St., St. Louis, Mo. 24

Cork Transmission Lining—Advance Automobile Accessories Corp., 56 E. Randolph St., Chicago, Ill. 28

Curb Station Outfit—Black & Decker Mfg. Co., 304 Water St., Baltimore, Md. 24
Cylinder Grinding Machine—B. L. Schmidt Co., Davenport, Ia. 37
A Cylinder Grinder—Pennypacker Mfg. Co., Los Angeles, Cal. 38
Cylinder Reamer and Jig—G. H. Dyer Co., Cambridge, Mass. 31
Dover Light Bulb Case—Dover Stamping and Mfg. Co., Cambridge, Mass. 38
Dover Truck Funnel—Dover Stamping and Mfg. Co., Cambridge, Mass. 35
Duplex Folding Basket—Planet Co., Westfield, Mass. 27
The Dyer Light Weight Piston—G. H. Dyer Co., Cambridge, Mass. 34
The Dyer Welding and Carbon Removing Outfit—G. H. Dyer Co., Cambridge, Mass. 36
Electric Glue Pot—Mabey Electric and Mfg. Co., 968 Fort Wayne Ave., Indianapolis, Ind. 26
Everlasting Hose—Chicago Tubing and Braiding Co., Chicago, Ill. 36
The Esy-Out Screw Extractor—Cleveland Twist Drill Co., E. 49th St. and Lakeside Ave., Cleveland, O. 26
The Fautless Pail and Funnel—National Mfg. Co., Des Moines, Ia. 27
F-F Battery Booster—France Mfg. Co., Cleveland, O. 29
Fitall Adjustable Toilet Kit—Eiseman, Kaiser & Co., 23-31 S. Franklin St., Chicago, Ill. 26
Free Air Unit—Gardner Governor Co., 126 Williamson St., Quincy, Ill. 29
Gasoline Storage Outfit—Wm. B. Scaife & Sons Co., First National Bank Bldg., Pittsburgh, Pa. 36
The Groetken Automatic Measuring Barrel Pump—Groetken Pump Co., Aurora, Ill. 39
The Guarantee Visible Pump—Guarantee Liquid Measure Co., Pittsburgh 35
The Handy Service Cabinet—Stevens & Co., 375 Broadway, New York 38
Hartford Auto Jack—Edward V. Hartford, Inc., 147 Morgan St., Jersey City, N. J. 28
Hartford Shock Absorber—Edward V. Hartford, Inc., 147 Morgan St., Jersey City, N. J. 28
Imperial Primer—Imperial Brass Mfg. Co., 517 E. Racine Ave., Chicago, Ill. 34
Ignition Lock for Fords—New York Coil Co., 338 Pearl St., New York 25
Inner Tube Case—Martin Mfg. Co., Lancaster, Pa. 32
The Invincible Tire Pressure Tester—United States Gauge Co., New York ...30
The Johnson Electric Grinding and Buffing Tool—U. S. Electrical Mfg. Co., 450 E. Third St., Los Angeles, Cal. ...33
The Lectrofiater Carriage Outfit—Black & Decker Mfg. Co., Baltimore, Md. ...24
Leviathan Garage Funnel—Dover Stamping and Mfg. Co., Cambridge, Mass. .26
The Liberty Plane—Defender Auto Lock Co., Inc., Marquette Bldg., Detroit, Mich. 36
Lighting System—Detroit Starter Co., Detroit, Mich. 28
The Manley 22-Ton Universal Auto Press—United Engine and Mfg. Co. 32
The Midway Ford Special Magnetizer—The Midway Mechanical Co., 1555 Selby Ave., St. Paul, Minn. 35
The Minute Demountable Wheel—Hill-Smith Metal Goods Co., 88 Pearl St., Boston, Mass. 22
The Motor Driven Visible Measure Gasoline Dispenser—Westinghouse Electric and Mfg. Co., E. Pittsburgh Pa. 31
The Mosco Floating Plunger Wheel Puller—Motor Specialties Co., Waltham, Mass. 32
Neville More Room Wheel—Neville Steering Wheel and Mfg. Co., Congress St., Detroit, Mich. 37
New Apco Products—Auto Parts Co., Providence, R. I. 25
Two New Apco Specialties—Apco Mfg. Co., Providence, R. I. 37
The New Era Foot Accelerator—New Era Spring and Specialty Co., 717 Mather St., Chicago, Ill. 31
The Panvar Car Refinisher—The Panvar Co., 618 Bulletin Bldg., Philadelphia, Pa. 31
The Petry Cut-Out—N. A. Petry Co., Inc., Philadelphia, Pa. 27
Philbrin Ignition System—Phillips-Brinton Co., Kennett Square, Pa. 27
Portable Benches—United Engine and Mfg. Co., Hanover, Pa. 29
The Portable Floor Crane—United Engine and Mfg. Co., Hanover, Pa. 34
Portable Lubricating Station—S. F. Bowser & Co., Ft. Wayne, Ind. 27
Raydex—Omolite Co., Inc., Jamestown, N. Y. 39
Rhodes Horizontal Shaper—Rhodes Mfg. Co., Hartford, Conn. 35
Rock-A-Bye Auto Seat—The Perfection Mfg. Co., 2700 N. Leffingwell Ave., St. Louis, Mo. 38
Rofilo—Rofilo Sales Co., 1317 L. C. Smith Bldg., Seattle, Wash. 35
Scientific Garage Oil Heater—Scientific Heater Co., Cleveland, O. 25
See-Safe Windshield Wiper—Stadeker Metal Specialty Co., 19 S. Fifth Ave., Chicago, Ill. 36
The Shaw Wrench—Shaw Propeller Co., Boston, Mass. 25
Singer Auto Traffic Signal—Singer Auto Traffic Signal Co., 2827 Locust St., St. Louis, Mo. 29
The Standard No. 102 Brunner Air Compressor—Brunner Mfg. Co., Utica, N. Y. 25
The Stenman Electric Valve Grinder—Stenman Electric Valve Grinder Co., Inc., 42 Southbridge St., Worcester, Mass. 39
The Stow Electric Buffer—Stow Mfg. Co., Binghamton, N. Y. 39
The Swan Fan Belt Adjuster—Mechanical Belt Co., 1202 Frederick Ave., St. Joseph, Mo. 26
3A Company Flag Holder—American Automobile Accessories Co., Cincinnati, O. 24
Toledo Air Compressor—Toledo Gas Engine Works, Toledo, O. 27
Tomahawk Graphite Spring Lubricator—Charles W. Manzel Co., 309 Beard Ave., Buffalo, N. Y. 26
The Tube Deflator—Williams Foundry and Machine Co., Akron, O. 26
Twin Spring Shock Absorbers for Fords—Twin Spring Co., 1000 Boylston St., Boston, Mass. 37
The Vaporator—Vaporator Mfg. Co., 2727 Washington Ave., St. Louis, Mo. 32
The Vaporspray—Vapor Valve Co., 2820 N. Spring Ave., St. Louis, Mo. 35
Victorlene—Victorlene Co., 39 Pearl St., Boston, Mass. 27
The U. S. Dash Board Sight Feed Oil Gauge—United States Gauge Co., 67 Wall St., New York 34
The Universal Cylinder Reboring Tool—Universal Tool Co., Detroit, Mich. 33
The Universal Hose Clamp—Universal Clamp Mfg. Co., 150 Broadway, Concord, N. H. 24
Valve and Tire Tool—King Specialty Mfg. Co., Brookline, Mass. 28
The Wagner Rectifier—Wagner Electric Mfg. Co., St. Louis, Mo. 31
The Walker Steebilt Shock Absorbers for Fords—Walker Mfg. Co., 31 Hamilton St., Racine, Wis. 30
Warnola Warning Signal—Warnola Mfg. Co., 73 Wooster St., New York 30
The Way-A-Head Auto Lens—Way-A-Head Light Co., Pittsburgh, Pa. 37
The Wayne Pump—Wayne Oil Tank and Pump Co., Fort Wayne, Ind. 30
The Weaver Universal Tire Changer—Weaver Mfg. Co., Springfield, Ill. 30
Welded Steel Blocking—G. H. Dyer Co., Cambridge, Mass. 36
The Weise Leaf Spring Spreader—A. F. Weise, 133 W. Washington St., Chicago, Ill. 28
Whittmann Motor Camps—J H. Whittman Mfg. Co., Kansas City, Mo. 33
Wood's Everloc—W. C. Wood, 74 Western Ave., Minneapolis, Minn. 21
Wrench Display Set—Walden-Worcester, Inc., Worcester, Mass. 32
Wrought Steel Back Catch—Stanley Works, New Britain, Conn. 34
York Carburetor Perfector—York Carburetor and Auto Accessories Co., Inc., 680 Woodward Ave., Detroit, Mich. ...28

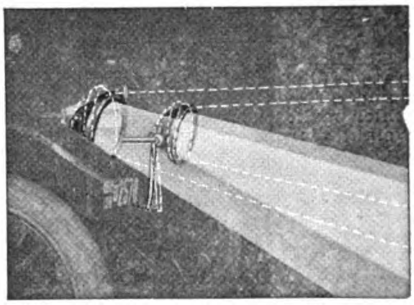
"Norwesco Utility Black" meets the big need for an all around utility enamel which the motorist can use for retouching all shabby metal parts of an automobile and that will be satisfactory for painting the engine. It is air drying and possesses heat baking qualities. After several months of testing and experimenting the Norwesco Laboratories have now added to their line of chemical specialties "Norwesco Utility Black." A black enamel designed for retouching all metal parts of an automobile such as the lamps, hood, radiator and fenders.

UTILITY BLACK
NORWESCO
AIR DRYING ENAMEL

Manufactured by the Northwestern Chemical Co., Marietta, O. Pints and half pints retail for $1 and 60c respectively.

The prices quoted in connection with the descriptions of accessories and equipment are subject to change at any time. When ordering learn new prices as material and labor conditions are constantly changing.

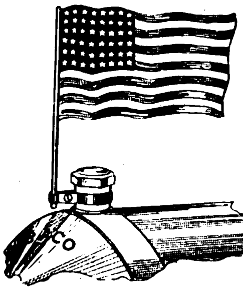
Pennock Headlight Tilter. A new solution for the headlight problem is given in the Pennock Headlight Tilter, a device for controlling the headlights of practically any make of car. The apparatus consists of a pair of headlight brackets mounted on the mudguards and connected with a foot pedal in such a manner that by pressing upon the pedal the brackets are tipped forward. With the pedal released the headlamps are in normal position throwing the beam of light straight ahead. For driving in cities or towns the lights may be locked so that the beam does not rise above the height prescribed by law. When meeting another automobile the lights may be depressed so that the rays do not dazzle the passing motorist, yet illuminate the road ahead.



For illuminating the road when topping a hill the tilting device makes the lamps exceptionally convenient. Beyond the fitting of the foot pedal no alterations to the car are necessary.

Manufactured by the Specialty Manufacturing Co., Minerva, O. Price for Fords, $5.

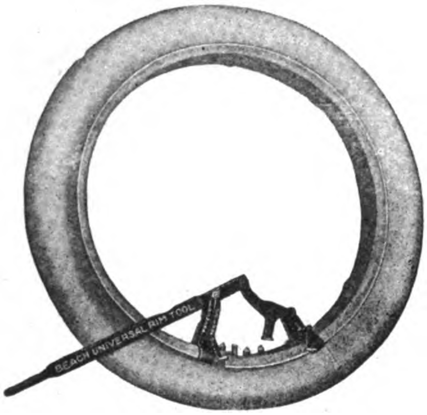
3A Company Flag Holder. There is a great demand for an inexpensive flag holder that will fit practically any automobile, and it is claimed that the 3A Company Flag Holder meets this demand. This flag holder is made of polished nickel plated steel and clamps around the radiator filler pipe of practically any car. Each device is supplied with a lock washer and bolt.



Manufactured by American Automobile Accessories Co., Cincinnati, O. Price, 25 cents.

The Beach Universal Rim Tool is a device designed to eliminate all of the hard work encountered in removing tires from split rims. Every autoist who has been obliged to remove and attach a tire to a split rim realizes that the work requires considerable effort. The tire must be stretched and the rim locked.

The device consists of two clamps, which are actuated by a long lever. For removing the tire the clamps are put into place and the lever pressed downward. This action releases the rim by spreading it one-quarter of an inch, raising it over the other edge two inches and carrying it by four inches, thereby contracting the rim sufficiently so that the tire can be easily removed.



The device is left in this position until the new tire is applied, when the action is reversed. It actually contracts and holds the rim, then expands and locks it in its true position in one operation without removing or changing the position of the clamps.

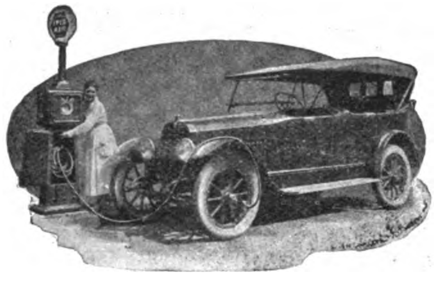
Manufactured by the Greb Co., 175 State St., Boston, Mass. Price, $7.50.

The Lectroflater Carriage Outfit, as illustrated, fills the need for a portable air pump. It operates on a new principle, which makes possible its small size, light weight, large air volume and high efficiency. The motor will run from any 110 volt lamp socket, direct or alternating current (220 volt machines furnished when desired), and will pump any size tire to required pressure in a very short time.

The manufacturers guarantee every Lectroflater to develop 125 pounds air pressure without overheating and to be free from imperfections in workmanship or material. All bearings, gears and pistons are automatically lubricated from a central source by the capillary system. There is no liquid lubricant or oil level to maintain.

Manufactured by the Black & Decker Manufacturing Co., Baltimore, Md. Price complete, $80; without carriage, $65.

Curb Station Outfit. A new and decidedly appealing device for automobilists has recently been placed on the market that should be of interest to every type of business by reason of its advertising value. It is called the Curb Lectroflater Station and is designed for the distribution of free air.



The station is massive and rugged in proportions, at the same time it has been designed with an eye to beauty, simplicity and effectiveness. Its lines are symmetrical and pleasing and the deep green enamel over its highly finished surface gives it a quiet dignity that is accentuated by the large beveled glass pressure dial and the substantial opalescent globe surmounting the taper column.

It is automatically operated day and night. The presure dial in the upper front door is flooded with light by a lamp concealed inside the cabinet and the tire valve connector on the end of the hose is so arranged that the pressure in the tire before starting to inflate is registered on the dial.

The upper compartment is kept locked and contains a standard No. 2 Lectroflater. The lower compartment, which is also provided with a lock and key, is normally left unlocked and contains a 25-foot length of heavy duty, triple braided hose and a rack for holding it when not in use.

Directly over the hose rack is an electric switch conveniently located for starting and stopping the Lectroflater when the large dial registers the desired pressure.

The whole apparatus is so arranged as to preclude the possibility of anyone tampering with the working parts and with the exception of the operating switch and hose connection, all parts are locked in the compartment. The device operates on either direct or alternating current and is said to be absolutely safe.

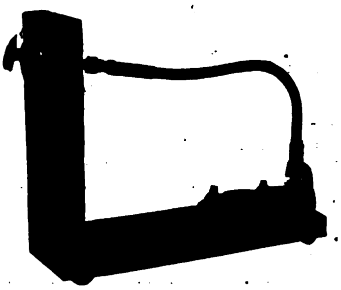
The Northern Electric Co., Ltd., Montreal, are the exclusive Canadian distributors.

Manufactured by the Black & Decker Manufacturing Co., 304 Water St., Baltimore, Md. Price quoted at request.

Comco Auto Lock. A lock that is said to be 100 per cent. thief proof is now being sold under the trade name of Comco Auto Lock. This device is very simple and is scientifically constructed.

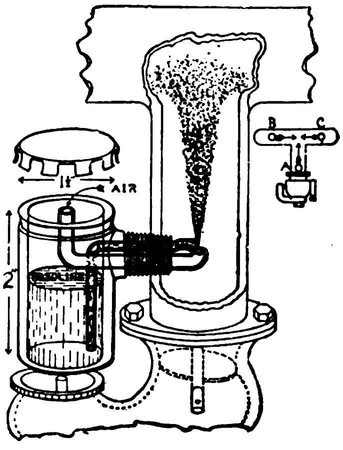
It consists of a gasket like attachment, which is fastened between the carburetor and intake manifold or engine. This gasket is cast integral with the lock mechanism housing and is fitted with a shutter which cuts off all the gas supply to the engine when the device is locked. From the lock mechanism a flexible connection leads to a combination dial on the dashboard, which may be set to a great number of combinations.

To lock the device a turn of the combination knob is all that is necessary. No gas can then reach the engine from the carburetor. The manufacturers claim that the device cannot be picked or broken without damaging the engine fittings, and is so simple that it may be operated in the dark by a person familiar with the correct combination. The illustration shows the dealer's display stand, which is furnished to any one ordering 12 or more locks.



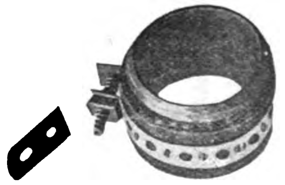
Manufactured by Combination Auto Lock Co., 1134 Chestnut St., St. Louis, Mo. Standard lock for any car, $10. Ford special, $7.50.

Atomizing Primer. Longest Atomizing Primer is designed to make the starting of an engine in cold weather an easy operation, by making it possible to thoroughly vaporize the fuel before it is sent into the cylinders. The device is attached to the intake manifold, and is made in two models. Model one is filled by hand, while model two is connected directly with the gasoline supply system.



Manufactured by Longest Bros Co., Louisville, Ky. Price for model one, $2.50; model 2, $5.

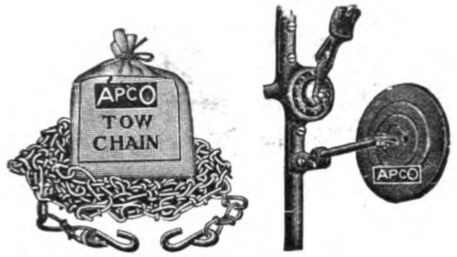
The Universal Hose Clamp is designed for the man who does not want to carry on hand an assortment of various sizes of clamps. It is said that this clamp combines all the good and desirable features of other types and besides is adaptable to all sizes and shapes of hose. There is only one piece to handle, it being slipped around a pipe no matter in what position it may be. It tightens with very little effort and grips the hose evenly all around.



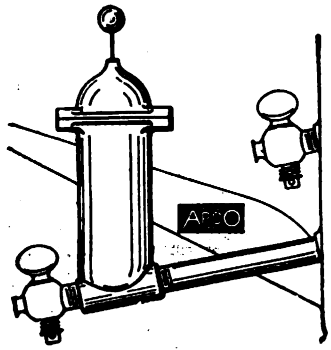
Manufactured by the Universal Clamp Manufacturing Co., 150 Broadway, Concord, N. H. Price quoted at request.

New Apco Products. Three new specialties for the Ford car have recently been put on the market and are shown in the illustration.

One of these is an all-metal oil gauge intended to be attached to the crank case. The height of the lubricant in the case is indicated by a white ball, which is attached to a float inside the gauge. The usual draining petcock may be screwed into the gauge. The finish is black enamel.



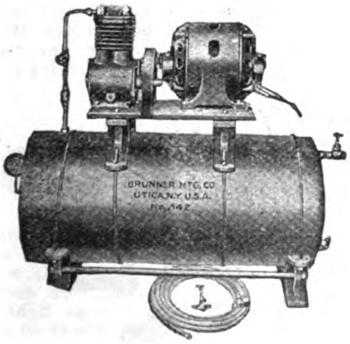
The Apco rear view mirror differs somewhat from the conventional type in that it is attached to the windshield supporting bracket by a screw instead of a clamp. The mirror glass is spun into the frame, 5½ inches in diameter of the reducing type. Finish is in black enamel.



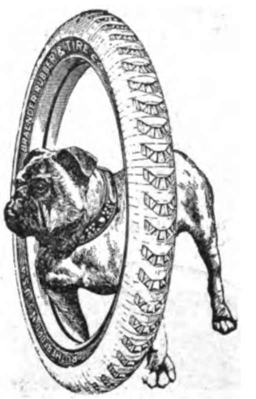
The tow chain illustrated, the makers claim, is capable of supporting a strain in excess of 2900 pounds. The links are treated with a special material to make them rust proof. The chain, which weighs but four pounds, comes in a neat canvas bag.

Manufactured by the Auto Parts Co., Providence, R. I. Prices: Oil gauge, 50 cents; mirror, $1; tow chain, $2.50.

The Standard No. 102 Brunner Air Compressor has a capacity of 2½ cubic feet of free air per minute. It is geared by means of a cloth pinion gear and a cast iron spur gear to a ½ horsepower motor, bolted to a substantial iron base, and is mounted on a 32-gallon welded open hearth flange steel tank tested to 300 pounds. Its height is 34 inches and occupies a floor space of 18 by 36 inches and can be attached to any lighting socket.



Manufactured by the Brunner Manufacturing Co., Utica, N. Y. Price with 110 or 220 volt direct current motor, $195. With one phase 60 cycle 110 or 220 volt A. C. motor (A. C. motors of other than 60 cycle at additional charge.) Price quoted at request.



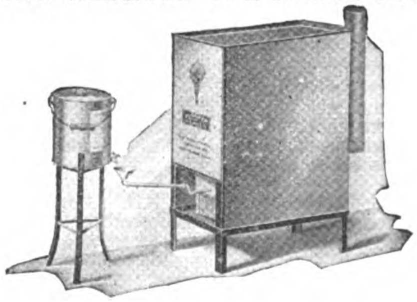
Braender Tires have been manufactured for six years. The process of manufacture is the wrapped tread single cure process, which means that the tires are cured or vulcanized at one time in one heat, being wrapped in cloth. One of the strong claims is that they are cured in live steam, which leaves the natural oil in the fabric and gives the tires long life. An even pressure is secured at every point, assuring perfect adhesion and vulcanizing.

Manufactured by the Braender Rubber and Tire Co., Chicago, Ill. Price quoted at request.

The Brunner Air Compressor is a portable outfit designed for inflating tires direct, without the aid of a tank or storage system. It is mounted on a substantial cast iron truck having three wheels, and is very durable and convenient to move about. The handle is strongly constructed of convenient height, and has substantial hooks for holding the electric cord and air hose when not in use. It is heavily built with standard No. 26 compressor, having accurately ground cylinders, pistons and piston rings. The motor is specially built, fully enclosed, affording ample power for operation under all conditions, and it may be operated from any light socket. All accessories are included to make the outfit complete and ready to operate when removed from shipping crate. A small chamber is supplied to precipitate the moisture from the air before entering the tire.

Manufactured by the Brunner Manufacturing Co., Utica, N. Y. Price at request.

The Scientific Garage Oil Heater burns either fuel oil or kerosene and embodies a new principle of oil burning. The burner itself is wickless and sootless, and no matter how strong the flow of fuel it will give perfect combustion. It is so constructed that all heat escapes from the top and none is radiated from the sides, thus making it practical for garages where there is little space between walls and car. It is built on the principle of the miner's safety lamp by which all air for combustion is taken through a fine gauze and through which flame cannot pass. Gasoline can be poured around the heater without danger of fire. The manufacturers claim a minimum use of fuel to heat the ordinary sized garage and eliminating danger of freezing, damage to body finish, etc.



Manufactured by the Scientific Heater Co., Cleveland, O. Price quoted at request.

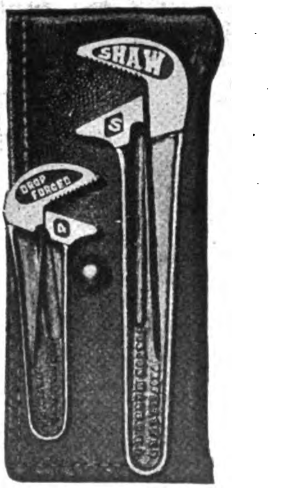
Ignition Lock for Fords. The New York ignition switch lock for Ford cars is a non-pickable barrel lock built into a steel nickeled housing and of very compact construction. It is easily installed by removing the three screws which hold the name plate on the regular Ford switch and screwing the ignition lock in place. Less than five minutes are required to install it.

YALE
LOCK SWITCH
YALE
BAT.

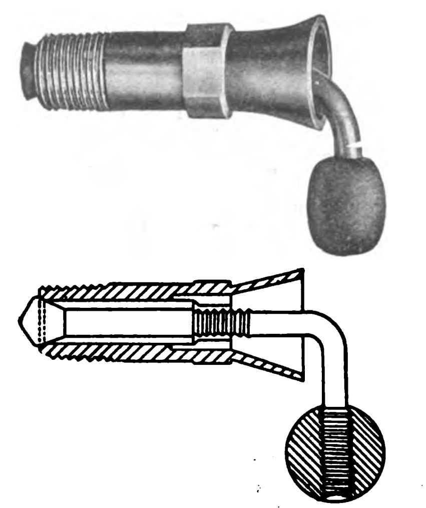
A three-lobed cam inside the switch forces outward three sliding members, which conceal and protect the retaining screws. They remain over the screws after the first operation of the switch and do not slide each time the key is turned. The key can only be removed when the switch is on the "off" position, when the cam prevents the lugs from being forced inwards.

Made by the New York Coil Co., 338 Pearl St., New York, N. Y. Retail price, $3.

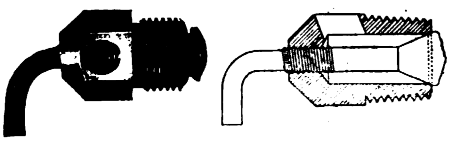
The Shaw Wrench. In the illustration is shown a handy one-piece wrench, which is designed to accomplish any task that can be done with a Stilson, monkey, alligator or flat wrench. It will be noted that there is a slit, extending from back of the jaws down the handle. This peculiar construction permits light work to be handled with a light grip and heavy work with a powerful grip. The greater the pull required to loosen a fitting the more powerfully the jaw sets.



Manufactured by Shaw Propeller Co., Boston, Mass. Price quoted at request.



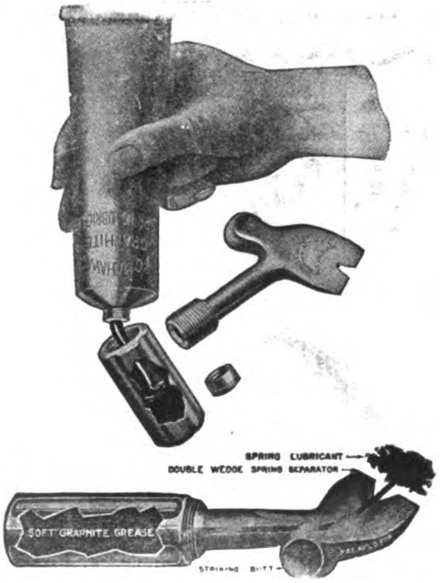
Britton Drain Cocks. The illustration shows the Britton Priming Cups and drain cocks. The cross sectional cuts show the simplicity of design and the self-contained features. Any pressure on the stem tends to seat the valve rather than to off-seat it, consequently, as pressure increases, the valve becomes tighter.



Due to the combination of the cone seating and threading of the stem, both devices have a self-locking effect.

Manufactured by Peter A. Frasse & Co., Inc., 417-421 Canal St., New York, N. Y. Price quoted at request.

Tomahawk Graphite Spring Lubricator consists of a case in which graphite grease is inserted, and a double wedge spring separator, through which the grease may be forced in a thin stream. The back of the wedge is fitted with a striking head. When it is desired to use the device the car is jacked up and the tool inserted between the spring leaves, either with the pressure of the fingers or a light tap of a hammer. The grease is then forced out by screwing up on the handle. A spring lubricant is put up in tube form, making it an easy matter to refill the container. Each tube is sufficient for 2000 miles of travel.



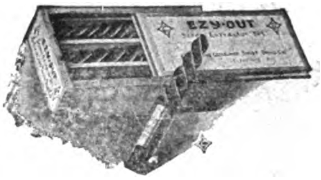
Manufactured by Charles W. Mansel Co., 309 Beard Ave., Buffalo, N. Y. Price, $1.25. Lubricant, 50 cents.

Leviathan Garage Funnel. To meet the demand for an extra large garage funnel the Dover Leviathan Garage Funnel has been designed. This device is fitted with a chamois skin filter across the bottom, stretched tight and supported by a wire rack, which while it prevents sagging, permits a filtering surface the full size of the funnel, thus insuring a rapid flow. It is made of extra heavy steel and thoroughly galvanized after it is made up, thereby giving it a durable and rustless coating.

The funnel part is made extra large and of sufficient capacity to take a five-gallon can of gasoline at a single pouring without having to wait for the contents to run through the strainer.

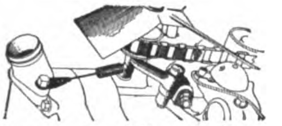
Manufactured by the Dover Stamping and Manufacturing Co., Cambridge, Mass. Price quoted at request.

The Ezy-Out Screw Extractor is designed for the express purpose of removing broken screws of all kinds, than which there is no more exasperating job in machine work. The device is designed somewhat like a cork screw, biting its way into the broken screw and then backing it out on its own threads. It is necessary only to drill a small hole in the broken screw and give a slight twist to the extractor in order to seat it firmly. The tighter the screw sticks the harder Ezy-Out grips and twists. The device is made of exceedingly tough steel, to withstand the strains to which it may be subjected, and it can be used on set screw studs, staybolts and screws of all kinds.



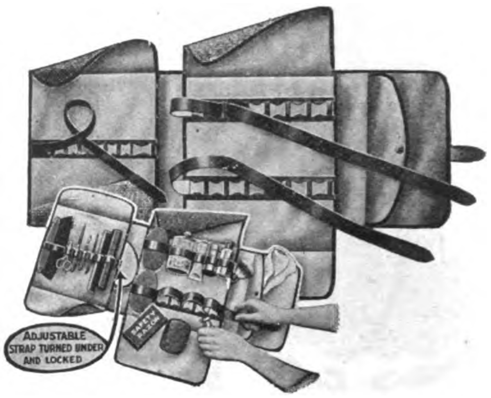
Made by the Cleveland Twist Drill Co., East 49th St. and Lakeside Ave., Cleveland, O. Price quoted at request.

The Swan Fan Belt Adjuster, the makers claim, will increase the efficiency and prolong the life of any Ford belt by always keeping it at the proper tension. It consists of a coil spring and a convenient fixture which connects the fan bracket to a stationary part of the engine. It is attached without special tools in less than five minutes.



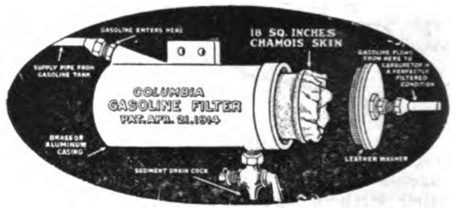
Manufactured by the Mechanical Belt Co., 1202 Frederick Ave., St. Joseph, Mo. Price, 35 cents each.

Fitall Adjustable Toilet Kit. For the convenience of the traveling motorist to store such toilet articles as he or she may desire, the Fitall Adjustable Toilet Kit makes a practical accessory. This toilet kit is light, compact and made of a water proofed and flexible leather. The strap holders are so arranged as to be adjustable to different toilet articles. Fitall kits are made in many different styles, either empty to receive the fittings which are already in hand, or for new fittings, as may be selected.



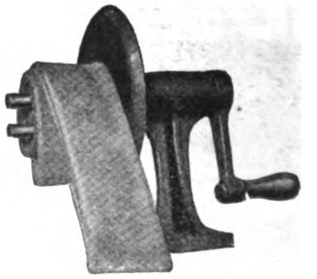
Manufactured by Eisemann, Kaiser & Co., 23-31 S. Franklin St., Chicago, Ill. Price quoted at request.

Columbia Gasoline Filter. The embarrassments attendant upon poor and unfiltered gasoline is fully realized by motorists. In order to function properly the carburetor must be supplied with pure liquid, water or dirt fill up the intake valves and cause many troubles. The Columbia Gasoline Filter is designed for insertion in the gasoline line at any point between the tank and the carburetor, preferably near the latter, and is so arranged that all of the gasoline passing through it is thoroughly strained, both through chamois and wire gauze. Due to its construction the straining surfaces are large and efficient. The device is easily cleaned and may be applied to any automobile.

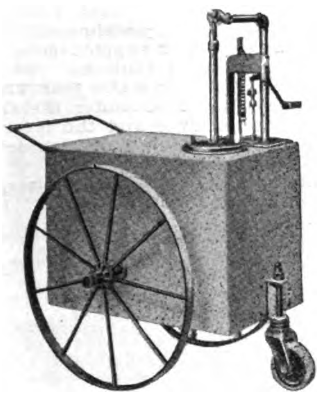

GASOLINE ENTERS HERE
18 SQ. INCHES CHAMOIS SKIN
SUPPLY PIPE FROM GASOLINE TANK
GASOLINE FLOWS FROM HERE TO CARBURETOR IN A PERFECTLY FILTERED CONDITION
COLUMBIA GASOLINE FILTER PAT. APR. 21.1914
BRASS OR ALUMINUM CASING
LEATHER WASHER
SEDIMENT DRAIN COCK

Manufactured by Columbia Gasoline Filter Co., Inc., 30 Beach St., Boston, Mass. Price, $5.

The Tube Deflator is a handy little device for use in repair shops and garages where much tire repairing or storing is done. To deflate a tube by the old hand method takes both time and patience. With the device illustrated, however, the tube is slipped over one of the projections on the plate, then, by turning the handle, the tube is wound tightly around the two projections and the air is quickly exhausted. Practically any size tube may be deflated with the device, which may be placed on the bench or wall in any convenient position.



Manufactured by the Williams Foundry and Machine Co., Akron, O. Price quoted at request.

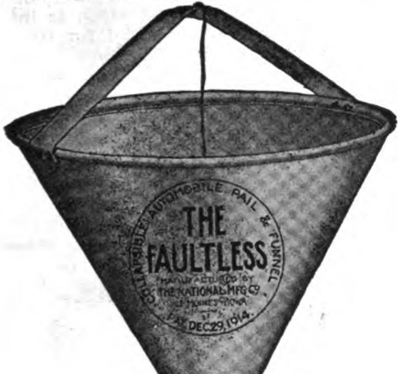


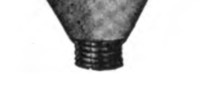
Portable Lubricating Station. A practical portable lubricating oil service station on wheels is illustrated herewith. It is designed to facilitate the dispensing of lubricating oil. The tank, which has a capacity of 65 gallons, is made of 14-gauge blue annealed steel, with welded joints and mounted on two 30-inch steel wheels with a small wheel at the front for a guide. The pump is so designed that it discharges on one complete stroke of the plunger an accurate quart of oil. Either a pint or half pint can be pumped by a simple adjustment of the quantity lever, which is mounted at the side and easily accessible. A nickel plated anti-drip nozzle is furnished on the pump, so designed that it effectively stops the flow of oil when pumping ceases.

All of the oil is strained before passing through the pump, so that clean oil is had at all times.

Manufactured by S. F. Bowser & Co., Ft. Wayne, Ind. Price quoted at request.

The Faultless Pail and Funnel is designed to fill the demand for an easily carried radiator filler. It is a combination of funnel and pail, made of heavy water proof army duck with a galvanized hoop in the top and non-rustable valve in the bottom. A pull on the string releases the valve in the bottom, allowing the water to flow through the small outlet tube.



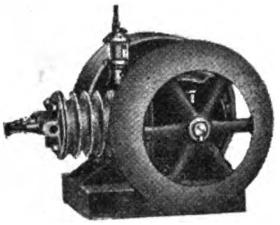


When not in use the combination may be folded up and occupies but very small space in the tool kit.

Manufactured by National Manufacturing Co., Des Moines, Ia. Price, $1.

Toledo Air Compressor. An air compressor which is said to contain a number of interesting features in design is herewith illustrated. This compressor has two compressing strokes and its action is as follows: As the piston travels to the top of the troke a charge of air is drawn into the base of the machine. This charge is compressed at the downward stroke of the piston and forced into the cylinder, where it is again compressed at the up stroke and forced into the tank.

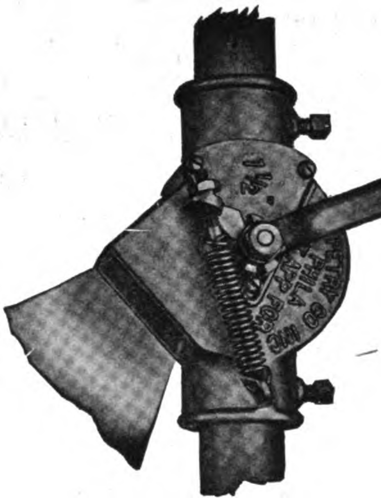
The cylinder has a three-inch bore and the piston a three-inch stroke and at 208 revolutions per minute fills a 12x60 inch tank to 80 pounds pressure in three minutes and to 160 pounds in 11 minutes. The cylinder is cast with cooling fins and air circulation is maintained by cooling fan on the flywheel. The pistons are long and carry five rings. The bearings are of bronze and the entire machine is heavily constructed.



In addition to the size above described, the manufacturers are building a compressor having a 3¼ inch bore and 4½ inch stroke. Operating at 200 revolutions per minute this size fills a tank 24x60 inches to 205 pounds per square inch in 30 minutes.

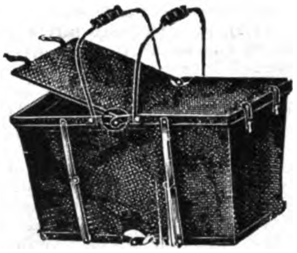
Manufactured by Toledo Gas Engine Works, Toledo, O. Price quoted at request.

The Petry Cut-Out is designed on scientific lines and is placed in the exhaust line between the engine and the muffler. The gas in passing through it is deflected over the valve to a very slight extent. This valve is so arranged that it does not obstruct the free passage of gas to any extent and when it is opened the gas is deflected through an opening to the air at a slight angle. When in this position it prevents the passage of gas to the muffler. A feature of this cut-out is the adjustable valve lever, which may be placed in any position in a circle; another feature is the removable side. The valve may be taken out without detaching the cut-out from the exhaust connections.



Manufactured by N. A. Petry Co., Inc., Philadelphia, Pa. Prices from $3.50 for 1½ inch size to $4.50 for 2½ inch size.

Duplex Folding Basket. Conservation of room is the first thought of the motor tourist who does not care to burden the machine with very many bulky articles. The illustration shows the Duplex Folding Handy Basket, which is made of brown canvas, water proofed, in which may be carried liquids or solids equally well. It is reinforced with spring steel, rust proofed ribs and equipped with double handles and snap hooks for the covers. For campers, fishermen and auto picnics they are ideal, as they may be compactly folded and stowed away under the seat.

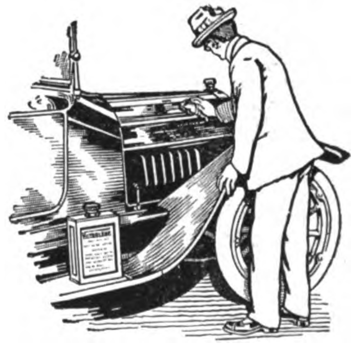


Manufactured by the Planet Co., Westfield, Mass. Prices, $2 and $2.50.

Philbrin Ignition System. The Philbrin high frequency ignition system for Ford cars consists of three units—a distributor, a non-vibrating coil and a switch. The distributor is attached to the timer shaft, taking the place of the present timer, and being mounted in an upright position brings this unit out of the oil and grease. The coil, a new non-vibrating type, compact in size, heat and moisture proof and with no moving parts, is contained in a molded case. The switch is of the selective type, permitting the use of two current sources, the Ford magneto or batteries. The system comes complete with thief proof locking device and all necessary brackets for mounting on the engine.

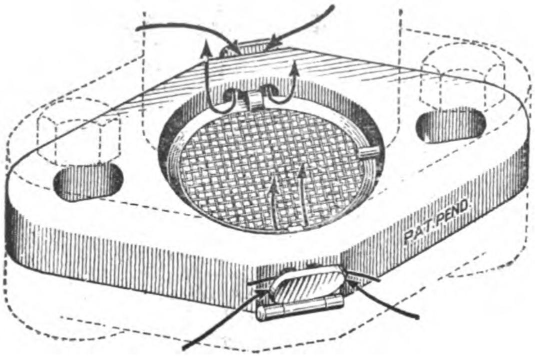
Manufactured by Philips-Brinton Co., Kennett Square, Pa. Price, $27.50.

Victrolene is a scientifically compounded cleaner and polisher for automobiles. The manufacturers claim that it will remove all tar and road oil and restore the finish of the car to its original luster; also that it will remove any rust that is on the nickel parts of the car. It may also be used to clean the leather upholstery and keep it soft and pliable.



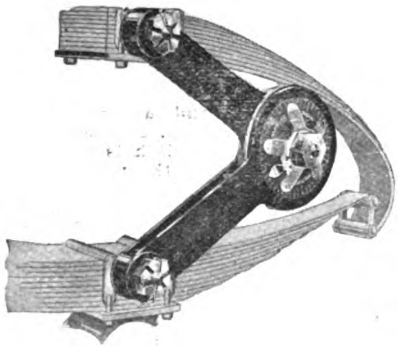
Manufactured by Victrolene Co., 39 Pearl St., Boston. Prices from 25 cents for half pint can to $3 for one gallon can.

York Carburetor Perfector. It has been scientifically proved that but a small percentage of the gasoline put into the tank is converted into useful power. The problem of a more efficient engine is troubling the engineers at the present time. The manufacturers of the York Carburetor Perfector claim a great saving in gasoline, and an increase of power when this device is used. The York Carburetor Perfector is fitted to the joint between the carburetor and intake manifold, and has a screen incorporated which is designed to break up the gasoline particles. The rapid passage of gas causes two little valves to open in the sides of the device, admitting air, which is in proportion to the speed of the engine. As the engine is slowed down the gas passing through the manifold does not have such speed and, therefore, the valves are allowed to close.



Manufactured by York Carburetor and Auto Accessories Co., Inc., 680 Woodward Ave., Detroit, Mich. Price quoted at request.

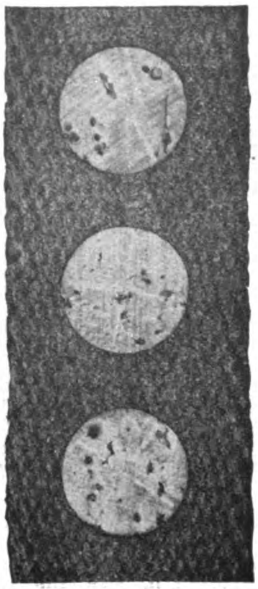
Hartford Shock Absorber. One of the features of the Hartford exhibit at the New York show was the demonstrations of the Hartford Shock Absorbers to prove that they absorb all road shocks, prevent side sway, vibration and jolting, eliminate the possibility of spring breakage and insure longer life for the car and its equipment, not to mention the increased comfort to passengers. These absorbers, which are made in six sizes, from the kind for the lightest of cars to the heaviest, are of the well known racing type that has been standard equipment on all speedway racing cars during the past season. Each Hartford set, consisting of four absorbers, is complete and ready to attach when received, and they are accompanied by detailed instructions for the work of installation. They are sold under the standard Hartford guarantee, which reads: "Money back if not satisfactory."



The manufacturer has planned an unusually wide and thorough going advertising campaign for 1917, which will result in benefit to those who handle his products.

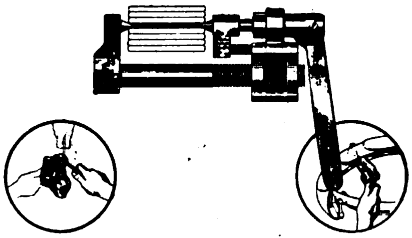
Made by the Edward V. Hartford, Inc., formerly the Hartford Suspension Co., 147 Morgan St., Jersey City, N. J. Price quoted at request.

Cork Transmission Lining. At the present time cork is being used extensively in automobile manufacture. Its resiliency, liquid repellant and frictional properties make it a very acceptable and useful product. The latest use is as an insert for transmission lining. This product is sold as a lining for the Ford car transmission bands. The base of the lining is formed of special imported fabric in which circular pieces of cork are inserted at intervals. The surface of the cork extends above the face of the lining to a very slight extent, so that the initial engagement with the transmission drums is made on the cork, the load being taken up by the fabric lining as soon as continued pressure compresses the inserts to its level.



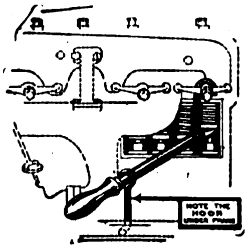
Manufactured by the Advance Automobile Accessories Corp., 56 E. Randolph St., Chicago, Ill. Prices upon request.

The Weise Leaf Spring Spreader when adjusted to the springs requires but one simple operation of the lever, which is rotable and can be worked or operated at any angle, spreading the springs apart and locking itself into this position, whereupon the springs may be sufficiently lubricated. It can be operated on springs varying from 1½ to 2¾ inches wide, all parts being interchangeable and practically indestructible.



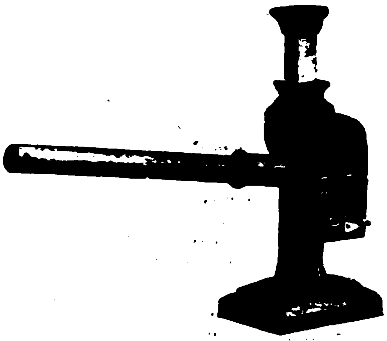
Marketed by A. F. Weise, 133 W. Washington St., Chicago, Ill. Price quoted at request.

Valve and Tire Tool. One of the many uses of this combination tool are shown in the illustration. For removing valve springs, etc., one of the hooks is placed over the manifold clip, the spring raised by the lever, which is hooked to the frame by the other catch, as shown. The valve spring may be left supported by the tool until the valve is replaced. This device may also be used as a tire tool. The end of the lever is inserted under the tire bead, the shoe pried over and the lever hooked to a spoke, thus giving an open point upon which to work.



Manufactured by King Specialty Manufacturing Co., Brookline, Mass. Price, 75 cents.

Hartford Auto Jack. Absolute reliability is essential for every automobile jack, and such is claimed for the Hartford Auto Jack, which is constructed by skilled workmen. The gears are turned from solid steel and are encased in a malleable iron housing with a broad, firm base. The gear ratio, together with the long handle and short stroke, admits the easy lifting of great weights. It is claimed that a pressure of 15 pounds on the handle develops 1000 pounds of lifting power on the rack; sufficient force to lift the largest car with ease. This jack is finished in black enamel and is a practical equipment for any car, light or heavy.



Manufactured by the Edward V. Hartford, Inc., 147 Morgan St., Jersey City, N. J. Price quoted at request.

Lighting System. The dealers' display stand shown in the illustration is intended as a demonstration board for Genolite, Dynolite and Constolite, three lighting systems. The board with all necessary brackets and attachments is furnished at same price as regular equipment and can be dismantled at any time and the systems installed upon a car.

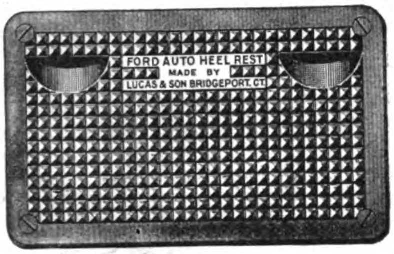
Genolite system type C consists of a generator, a storage battery, two electric side lamps, electric tail lamp, headlight light control, operated from switch on steering post, with all wiring and connections. Type D has in addition to the equipment of C a windshield spotlight.

Dynolite consists of windshield spotlight with regulator, switch and wiring, and designed to attach to the Ford car magneto.

Constolite consists of bulbs for headlights, regulator, dimming switch and wiring, and is designed to be attached to the Ford car magneto.

Made by the Detroit Starter Co., Detroit, Mich. Retail price of type C Genolite, $29.85; Type D, $31.85; Dynolite, $6.85; Constolite, $4.85.

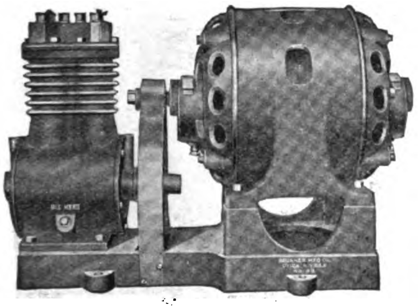
Auto Heel Rest for Fords. This is a simple device intended to relieve the driver of the strain that customarily results from holding the foot on the clutch and brake pedals for any length of time. It is made of frosted aluminum with a ⅜-inch polished band. Furthermore, such a device protects the rubber mat on the driver's compartment of a Ford car from being quickly worn out by pressure and friction of a shoe heel. The pyramids and raised letters on the rests are cast solid and will not flatten or wear through, nor rust or tarnish. The rests are made ½, 1, 1½ and 2 inches high and are supplied for all makes of cars.



Made by J. L. Lucas & Son, Bridgeport, Conn. Sold at retail at $1 each.

Air Pressure Controller. The new model M automatic air pressure controller, which has just been put on the market, is designed to automatically start and stop the motor operating an air compressor, thereby relieving the garageman of the trouble of watching the air gauge and starting and stopping the motor by hand. This controller will operate successfully on alternating current motors up to and including five horsepower and on direct current motors up to and including one-half horsepower. It is intended for use in connection with the No. 42 motor driven air compressor, a cut of which is shown herewith, and as this air compressor is driven by a one-half horsepower direct or alternating current motor, it will work successfully with the model M automatic controller.

MODEL M CONTROLLER
BRUNNER MFG. CO.
UTICA, N.Y. U.S.A.

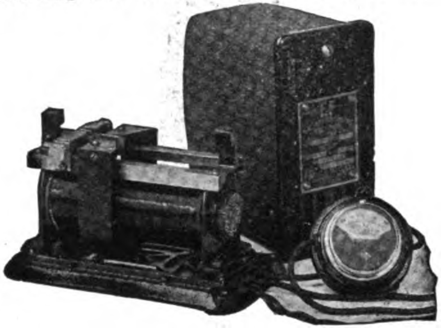


It is not a very hard matter to figure out how one of these automatic controllers will more than pay for itself in a very short time, as the only attention necessary is an occasional oiling of the motor, and the controller will insure a constant air supply at the right pressure without any attention whatever when once properly installed.

Manufactured by the Brunner Manufacturing Co., Utica, N. Y. Price quoted at request.

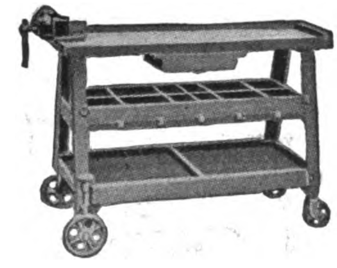
F-F Battery Booster. The F-F battery charging device is a magnetic rectifier for use on alternating current from any lamp socket of 60 cycles at voltages of 110, 220 or 20 per cent. higher or lower than normal and with a variation in frequency of 10 per cent., according to type of charger used.

A special transformer reduces the line voltage to the proper charging voltage without wasteful resistance. The change from alternating current to direct is accomplished through the use of copper and carbon electrodes actuated magnetically. By utilizing the negative, as well as the positive, alternations of the current, the full wave of alternating current is changed into a steady unidirectional current for charging batteries. A discharged storage battery can be recharged at a very high rate during the first several hours of charging, but should be reduced near the finish. This action is accomplished by the F-F Battery Booster, as, near the finish of a charge, when the voltage of the battery rises, the charging rate is automatically reduced to conform. The device is self-starting and when the alternating current is turned off or stops for any reason, the battery is cut out and cannot discharge through the rectifier. This action makes night charging practical. When desired two or more rectifiers can be connected in series or multiple on the secondary or load side to get various voltages and amperages.



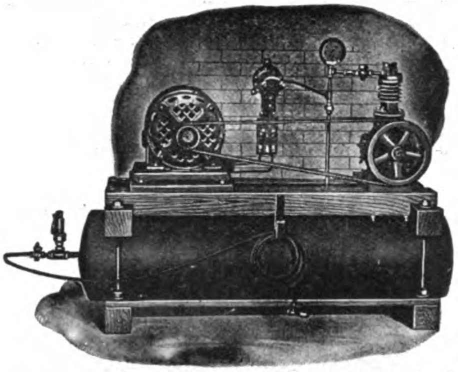
Manufactured by the France Manufacturing Co., Cleveland, O. Price, $15 complete.

Portable Benches. Since the repair shop in most garages is in a different section of the shop than the section in which the cars are stored, much time may be saved that is frequently spent by the repair man in going back and forth from the car to the shop for tools, and to do bench work. The illustration shows what is termed the quick action portable bench No. 1. It is designed to be wheeled to the car. The general construction of the bench is plainly seen from the cut. It is light, strong and rigid, easily steered by the roller bearing castors while being moved. The top is solid oak, the legs and upper cross pieces are steel angles. The lower cross pieces, as well as the wheels, are cast iron. By a special device the stand may be locked in standing position. With the exception of the vise the bench is equipped as shown.



Manufactured by the United Engine and Manufacturing Co., Hanover, Pa. Price quoted at request.

Free Air Unit. It is pretty generally conceded that the free air service is an attraction for any garage, whether large or small, and oftentimes such service brings steady customers. The Gardner automatic free air unit consists of a two by 2½ air cooled, splash lubricated air pump, bolted to a ½ horsepower electric motor and mounted on an oak frame. An endless belt is used and the motor is mounted on a sliding base for the purpose of taking up any slack in the belt that may be caused from use.



The frame is very securely bolted around the air tank and designed to prevent the danger of warping. An automatic controlling device, mounted between the pump and motor, starts and stops the motor automatically as the pressure falls and rises in the receiver. With the unit may be furnished all necessary connections and gauges complete for installation. The motor can be furnished to operate on either alternating 60 cycle single phase or direct current.

Manufactured by the Gardner Governor Co., 126 Williamson St., Quincy, Ill. Price quoted at request.

Singer Auto Traffic Signal. It is an interesting study to note the various signals adopted by automobilists in congested traffic conditions. No two methods seem to be alike. A hand thrust forth from the driver's side may denote, stop, turn to the left or turn to the right. Doubtless many accidents would be averted if a universal signaling system were adopted.

The Singer Auto Traffic Signal, which is now being manufactured, is designed to prevent traffic confusion and provide a suitable signal which is positive in action and easily interpreted.

This device consists of two electrically lighted boxes, one at the front of the car, the other at the rear, in which are carried five signs, Ahead, Right, Left, Stop and Back. These signs are controlled by a circular switchboard located on the steering column directly beneath the wheel.

When the driver of the car wishes to stop he simply presses the stop button and the signal Stop appears in both boxes. This same signal is automatically displayed upon application of the service brake. The other signals are operated in like manner and as all of the buttons are interlocking, but one signal can be displayed at one time.

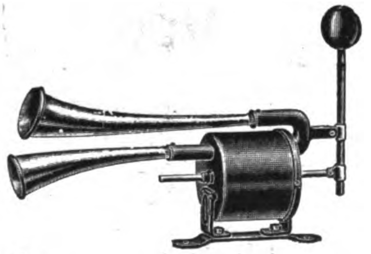
Manufactured by Singer Auto Traffic Signal Co., 2827 Locust St., St. Louis, Mo. Price quoted at request.

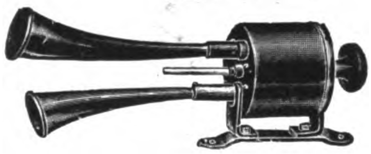
The Invincible Tire Pressure Tester is an ingenious device, which may be carried in the vest pocket like a watch or in a tin box, which is furnished, in the tool box. The crystal is made of so-called unbreakable composition, which is transparent. The dial is graduated to indicate from zero to 120 pounds pressure. In addition to the pounds pressure marking, a second series of numbers indicates the pressures required for different sized tires.

SIZE OF TIRES
3
3½
4
4½
5
10
20
30
40
50
60
70
80
90
100
110
120
INVINCIBLE
TIRE TESTER
U.S. GAUGE CO. N.Y.
PAT'D SEP. 1906. OTHER PAT. PEND'G.

Manufactured by United States Gauge Co., New York, N. Y. Price, $1.50.

Warnola Warning Signal. A horn with a distinctive note that does not alarm, yet serves as a warning signal, is illustrated herewith. This device is built to satisfy the demand for a different warning, something that would be effective in the city where everyone was accustomed to ordinary horns, and also in the country where the note must be far reaching. No diaphragms or springs are used in the horn, the note being produced by the rush of air from a piston working in a double end cylinder through reeds. Short, sharp blasts may be given by a quick movement, or a long distance covering signal produced by a slower plunge of the piston. The device is made in two styles, Nos. 1 and 2.





Manufactured by Warnola Manufacturing Co., 73 Wooster St., New York. Price for No. 1, $7.50; No. 2, $5.

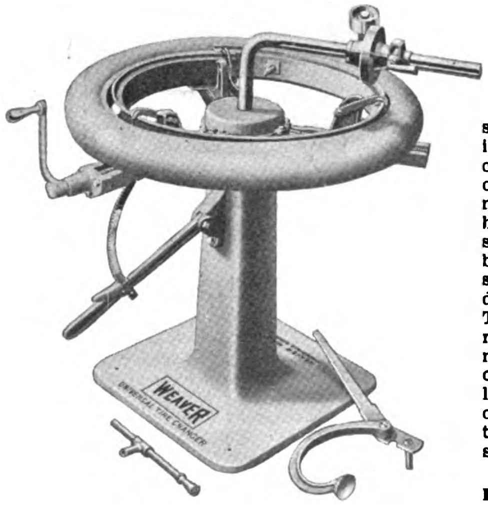
The Wayne Pump solves a problem that has been uppermost in the minds of pump and tank manufacturers for 25 years—that of a continuous flow self-measuring pump. The pump stands nine feet, two inches over all and has a base diameter of 18 inches. The housing is cylindrical in form, the upper part of which slides up and down on counter-balanced weights, much like a window. This arrangement does away with the necessity of extra space at the curb, which is always necessary where hinged doors are employed. This makes the pump weatherproof, eliminating all danger of damage to the mechanism and making it impossible for the pump to be operated by an unauthorized person.

This is a plunger pump—not a rotary pump—which has two reciprocating plungers so operated that the combined displacement is constant. Adjustments of the plunger stroke are very simple and minutely accurate. A simple adjustment makes it possible to secure any exact unit of liquid. All bearings are large and automatically oiled. No crossheads are used. The usual form of stuffing boxes are found—there being two in number. Two recording devices are attached to the pump—one 1,000,000-gallon meter and an eight-inch predetermining counter is attached to the front of the pump. This enables the operator to obtain any quantity from one quart to 20 gallons, and repeat if necessary. Both of these devices are driven in a positive manner, making it impossible for the pump operator to obtain even the smallest part of a gallon from the pump without an accurate record of the transaction appearing on the recording devices.

The standard finish of the pump is orange enamel lettered in gold bronze.

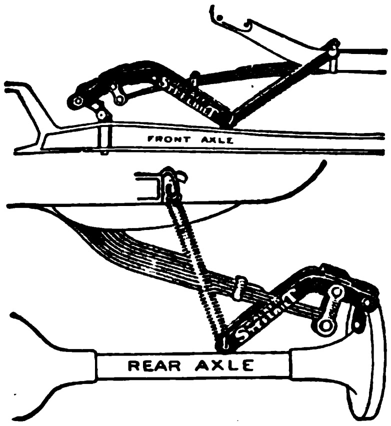
Manufactured by the Wayne Oil Tank and Pump Co., Fort Wayne, Ind. Price quoted at request.

The Weaver Universal Tire Changer is designed for the rapid changing or mounting of tires. It reduces to a minimum the time for changing quick detachable rim tires, split rim mountings or clincher tires. The changing operation is entirely mechanical and the device is so arranged that little effort is required. The manufacturers claim that there is no damage to tire hazard present since all the pressure is brought upon the tire by means of roller contact.



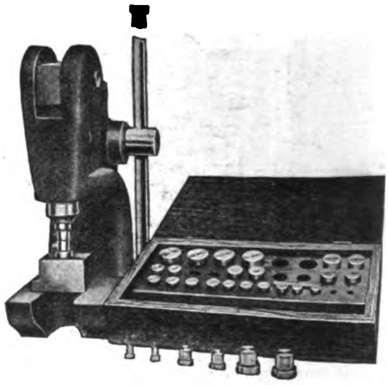
Manufactured by Weaver Manufacturing Co., Springfield, Ill. Price quoted at request.

The Walker Steelbilt Shock Absorbers for Fords smooth out rough going—soak up the shocks and cradle the Ford in a big, easy car sway, the makers claim. They are built entirely of steel with the springs extra long, oil tempered and of the utmost durability. The spring bolts are turned from cold rolled steel and hardened—equipped with oilers. The free, unhampered action given to both the coils and springs require no sliding parts and they are thoroughly safe and as strong as steel can be in every section.

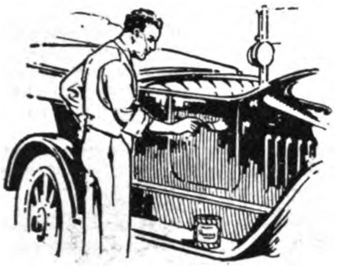


Manufactured by the Walker Manufacturing Co., 31 Hamilton St., Racine, Wis. Price, $7.50 per pair.

Beach Bushing Press. It is safe to say that nearly one-fifth of the expense and labor in overhauling an automobile goes into the repair or replacement of the bushings. The Beach process bushing press outfit consists of a small press having a 30-ton pressure capacity, and a set of swedges in all sizes from 7/16 to 1 3/16 inch, an outfit which will handle practically all the bushings now in use. The operation of the press is simple and in most cases it is unnecessary to remove the bushing from the piece. The proper size swedges are placed in the bushing, the bushing then placed in the press and pressure applied. All that then remains to be done is to ream out the bushing to fit. The press saves the outlay for a stock of metal or cored bushing material, as in most cases the old bushings may be used over again. It is claimed that bearings last longer after this treatment because of the harder and closer grain imparted to the metal by the extreme pressure of swedging.



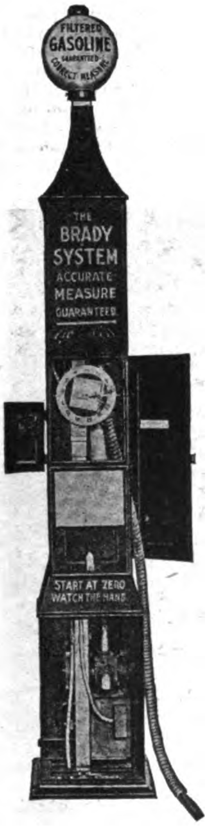
Marketed by the Greb Co., 202 State St., Boston, Mass. Price quoted at request.



The Panvar Car Refinisher is a lasting liquid luster that can be handled with excellent results by the amateur. It dries over night and is quickly applied, is self-leveling (which means that it will dry out evenly and not show brush marks); dries with a hard, glossy finish, and being transparent can be used on any colored car, seats, tops and plated parts. Luster will last as long as varnish, and the makers claim will not crack, creep, peel or turn white from the effects of water or steam. Sells for $1.50 a quart. A quart will do a car.

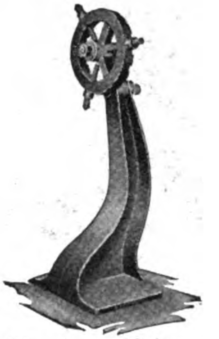
The Panvar Co., 618 Bulletin Building, Philadelphia, Pa. $12 per dozen. (1 case.)

The Motor Driven Visible Measure Gasoline Dispenser is designed to eliminate the incidental losses in the vending of gasoline. The accompanying illustration shows the general appearance of the apparatus opened up to show the mechanism. The pump is driven by a Westinghouse one-quarter horsepower motor, entirely enclosed in the base in accordance with the rules of the National Board of Underwriters. The Brady dispenser visibly delivers a full gallon for every gallon ordered. When the wagon delivers gasoline to the garage the tank gauge shows accurately the full quantity obtained. Every gallon drawn from the tank into the disoenser is shown on the tank register, which can be checked with the tank gauge. Thus both the public and the garage owner are protected from loss. Furthermore, the oil companies are enabled to make more rapid deliveries than by measuring cans from wagons to garage tank where the Brady dispenser is installed.



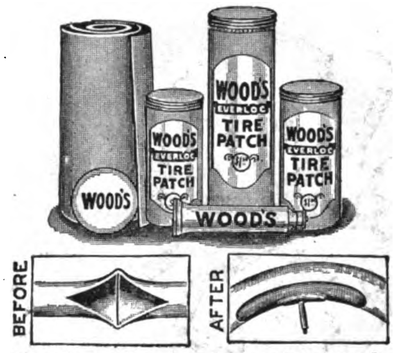
Manufactured by the Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pa. Price quoted at request.

The Akron-Williams Tire Rebuilding Stand is designed for the tire repair shop, used on retread jobs and major sectional repairs. It is similar to stands used for hand operation in tire factories. Unlike the latter, however, it takes up a minimum of floor space and is much lighter in weight without sacrificing convenience or strength. A new feature is the spring ratchet attachment, which permits the tire being turned either way at will, or being locked rigidly in any desired position.



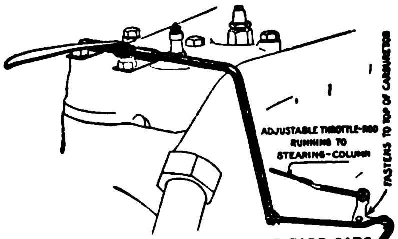
Manufactured by the Williams Foundry and Machine Co., Akron, O. Price, $30.

Wood's "Everloc" makes a permanent repair on the smallest puncture or largest blow out on tubes without vulcanizing. The patch comes rolled in container, with tube of cement complete, and the makers claim a permanent job on any puncture from anail hole to a cut or blow out 17 inches in length, which can be applied in five minutes.


WOOD'S
WOOD'S EVERLOC TIRE PATCH
WOOD'S EVERLOC TIRE PATCH
WOOD'S EVERLOC TIRE PATCH
WOOD'S
BEFORE
AFTER

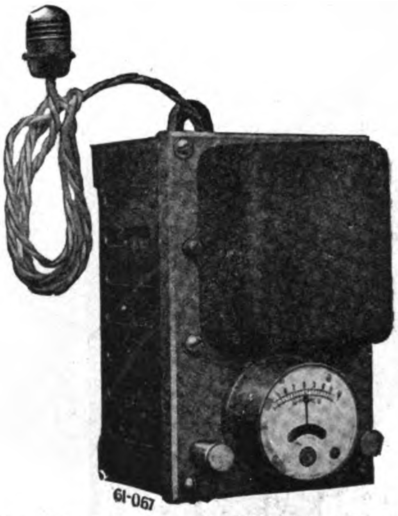
Manufactured by W. C. Wood, 74 Western Ave., Minneapolis, Minn. The $1.50 patch is made in sheets 6½x18½ inches, $1 patch 4 1/16x18 inches, 50 cent patch 2x16½ inches, and can be cut to any size desired. Large sheets will repair 100 one inch cuts or 250 nail punctures.

The New Era Foot Accelerator can be attached to any Ford car in a few minutes. There are no holes to drill nor is any machine work needed. It furnishes a perfect foot control and enables the driver to get the car under full speed in a minimum amount of time, and leaves his hands free to operate the steering wheel, or horn.


ADJUSTABLE THROTTLE-ROD RUNNING TO STEARING-COLUMN
FASTENS TO TOP OF CARBURETOR

NEW ERA FOOT ACCELERATOR FOR FORD CARS

Manufactured by New Era Spring and Specialty Co., 717 Mather St., Chicago, Ill. Price complete, $1.



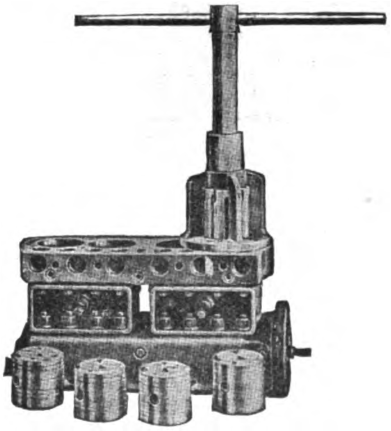
The Wagner Rectifier. Because of unusual driving conditions the using of starter and lights for long periods, many motorists find it necessary to have the battery charged from an outside source of current from time to time.

It is not always convenient to visit a battery station and should it be necessary to leave the battery for some time the owner is often without the use of the starter and lights, or possibly even the car itself.

The Wagner Rectifier is a device for home charging from alternating current and is of the well known vibrating type, simple and entirely mechanical. With it the alternating house current may be used, the battery connected and left. The manufacturers claim that with the Wagner Rectifier it is impossible to connect the battery up wrongly and that once started it requires no further attention until the battery is fully charged. The device is designed to give a tapering charge so that an overcharge is impossible.

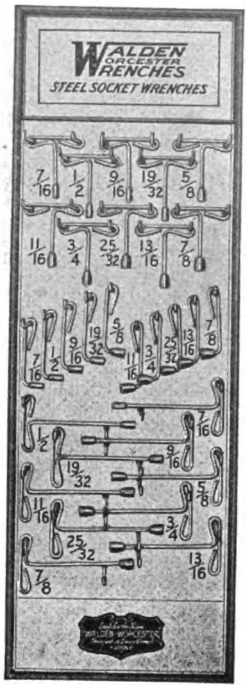
Manufactured by Wagner Electric Manufacturing Co., St. Louis, Mo. Price quoted at request.

Cylinder Reamer and Jig. There is a constant call on repair shops for the reboring of cylinders. As the efficiency of any engine is greatly impaired by scores, or cylinders that have been worn out of round, practically the only repair in many cases is the reboring of the cylinders and replacement of the old pistons with oversized pistons. Illustrated herewith is a reamer and jig for the reboring of Ford, Metz and Buick 3¾ inch cylinders 1/32 inch oversize. This reamer is fitted with inserted tool steel blades designed to cut on the end of the blade. The tool centers itself and the jig will square the reamer, thus giving a perfect bore. It is said that owing to the simplicity of operation and because of the centering feature it does not require experienced labor to operate it.



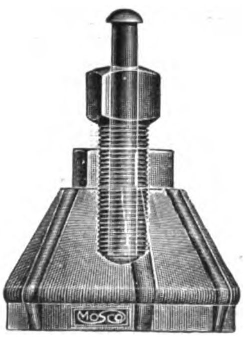
Manufactured by the G. H. Dyer Co., Cambridge, Mass. Price quoted at request.

Wrench Display Set. The display and stock set of offset and tee handle wrenches illustrated, is designed to be used as a silent, ever-working salesman in the supply station. An essential point on all wire handle wrenches is the method of attaching the socket to the wire so that it cannot work loose or turn. The Walden Worcester wrenches are made by special method. The wire handles are milled and driven into the oval shaped broached hole in the socket, making it impossible for the handles to turn or work loose. All sockets are made of steel, from a solid bar, and broached accurately to size. They are shaped to allow a maximum of clearance in use, but with full allowance of stock for proper strength.



Manufactured by Walden-Worcester, Inc., Worcester, Mass. Price quoted at request.

The Mosco Floating Plunger Wheel Puller is made to fit 172 models of 32 popular cars. The special feature of this puller is the floating plunger, which slides in the pressure screw. When the wheel is stuck or frozen to an axle a tap of the hammer on the head of the plunger will generally loosen the wheel.

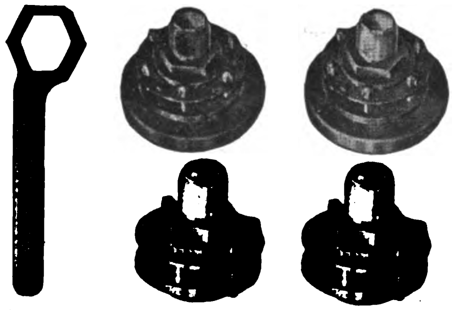


Manufactured by Motor Specialties Co., Waltham, Mass. Price quoted at request.

Inner Tube Case. There are a number of important factors to be considered in the preservation of spare inner tubes that the average motorist is prone to forget. The life of rubber is materially shortened by exposure to light, moisture to a certain degree, oil or gasoline. Tubes thrown carelessly into a tool box depreciate very rapidly and are often rendered worthless by frictional contact with sharp edged and pointed tools. The Martin Inner Tube Cases, which are made for either one or two tubes, are of water proof enameled cloth and offer protection against light as well as abrasion. They offer a practical solution to the exposure problem and pay for themselves by preserving tubes and saving the patience of the autoist.

Manufactured by the Martin Manufacturing Co., Lancaster, Pa. Price for single tube case, 35 cents; double case, 50 cents.

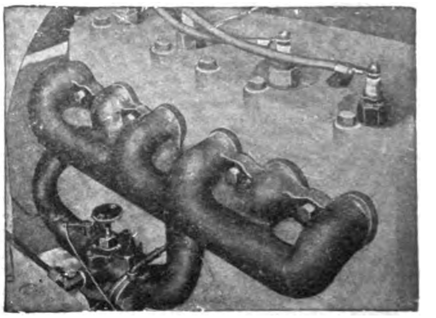
The Minute Demountable Wheel is, as its name implies, designed to afford instant change of Ford wheels on the road when tire troubles develop, obviating the necessity of struggling with the tire. The wheel is taken off by simply unscrewing one nut, and it can be replaced just as easily, the maker claiming either operation can be done in 60 seconds. The Minute Wheel equipment requires that the four special hubs sold with the wheel be fitted upon the regular Ford hubs, which gives increased strength to the assembly. The Ford wheels are used and the flange part of the new hubs is bolted to this with its powerful driving lug bolts. The two units lock together with the exactness and more than the strength of one piece. As the nut goes on with a left hand thread, it is impossible for it to come off, even though the locking plate, which is provided, should not be used.



Made by the Hill-Smith Metal Goods Co., 86 Pearl St., Boston, Mass. Retail price for complete equipment for four wheels, $30.

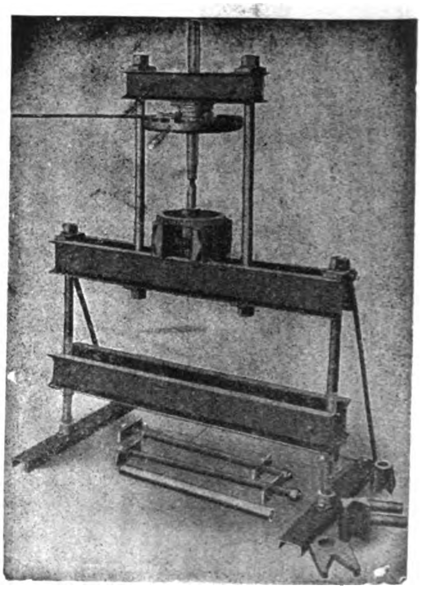
The Vaporator. Every motorist is interested in the reduction of fuel cost, and it would seem that the only practical solution of this problem at the present time is to use kerosene or coal oil for fuel, rather than the more expensive gasoline.

The Vaporator, the makers say, is a practical and efficient device for the utilization of coal oil as a fuel. Not only a reduction in fuel cost is claimed, but also an increase in mileage per gallon. This device combines an exhaust and intake manifold, to which is attached the standard Ford carburetor. Attached to the front of the seat and connected with the manifold is an auxiliary gasoline tank holding 1 1/2 gallons. The gasoline is used simply for starting, after the engine has heated up this fuel is shut off and the engine continues to run on kerosene, which is held in the main tank. The full equipment comes ready to attach and requires no special fitting or boring of holes.



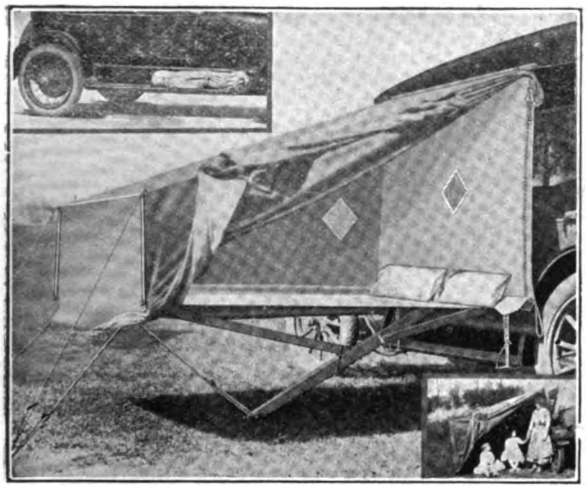
Manufactured by the Vaporator Manufacturing Co., 2737 Washington Ave., St. Louis, Mo. Price, $16.50.

The Manley 22-Ton Universal Auto Press has a high power leverage, starting at 200-1 and automatically increasing at the end of stroke to 5000-1. This is obtained by the lever fitting into the socket on ratchet block. The paul uses the same notches in hand wheel and tremendous pressure is obtained on the screw with little effort. An important feature of this press is that the screw being exposed at the top may be struck a sharp blow in obstinate cases, such as a rusted shaft, which pressure alone will not move. With maximum pressure the jar of the blow does the rest. No damage to the press will result, as it is designed to withstand such a blow.



The low power press (1000-1) leverage is 10 times quicker than a ratchet.

Manufactured by the United Engine and Manufacturing Co. Price complete, $66. Write for literature.



Whittmann Motor Camps, when packed are only four feet six inches long and six inches in diameter. They strap to the running board of the car and the duffle which incloses it permits room also for the stowing of blankets, etc. It is but the work of a moment to unroll it, fasten one end to the running board, set up its one leg, peg down the guy ropes and fasten the peak of the tent over the car. The tent is then ready for the night and the double bed, which is 4½ feet wide by six feet three inches long, is as comfortable as a mattress. The camp walls are joined and overlapping with a screened port on each side, adjustable from within to admit the breeze, but so designed as to exclude rain and insects. These camps are made for two, four, six or eight people, with separate rooms for each two. The dimensions of each room are six feet eight inches long by four feet six inches wide. The bed tension is automatically self-adjusting to weight and sags less the more weight is put upon it. The tent is made of waterproof balloon silk and the entire equipment, including tent, bed and carrying case, weighs 15 pounds per person.

Manufactured by J. H. Whittman Manufacturing Co., Kansas City, Mo. Price quoted at request.

The Johnson Electric Grinding and Buffing Tool is operated by a self-enclosed motor, with all its working parts enclosed in a dirt proof casing. The motor may be had in a number of windings at speeds of either 1800 or 3600 revolutions per minute. For garage work the arbors may be fitted with two grades of emery wheels; for tire vulcanizers a buffer and grinding wheel. The manufacturers claim the machine is pleasing in appearance, both easy running and silent in operation. The illustration shows the machine upon a standard mounting, but the grinder unit may be purchased or used separately.

U.S. ELECTRICAL MFG. CO.

Manufactured by the U. S. Electrical Manufacturing Co., 459 E. Third St., Los Angeles, Cal. Price quoted at request.

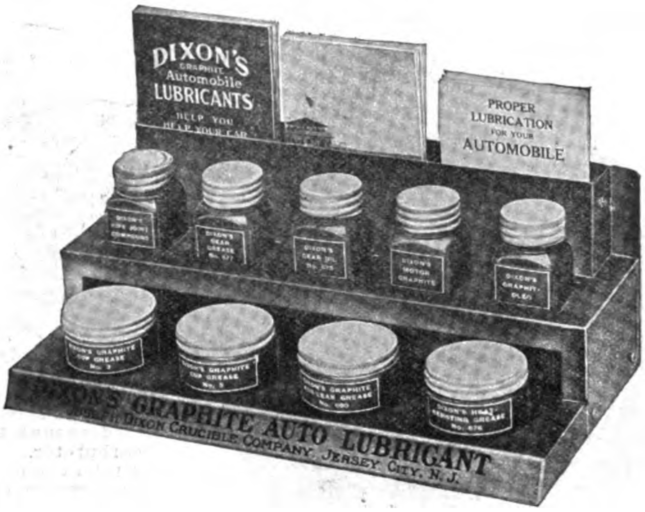
Buffington Folding Chair. The illustration shows a folding chair that weighs only nine pounds and can be folded into a space three inches thick. Such a seat is especially adaptable to small cars when an extra passenger is to be carried. The seat comes finished in Japan and may be had in a number of sizes.

Manufactured by C. A. Buffington & Co., Berkshire, N. Y. Price quoted at request.

The Tell-Tale Piston Ring is made of a metal which is capable of withstanding a great heat without losing its tension. Each ring is individually cast and retains its scale or resilient strength when finished. The wearing edge is turned and so adapts itself to the cylinder in which it slides. Around the outside is turned a shallow groove or wiping chamber, which is designed to collect any surplus oil and allow it to escape into the crank case through vertical channels cut to the groove at intervals. The joint is of the familiar square lap type, in effect two rings but only one casting.

TELL-TALE
TRADE MARK
PISTON RINGS

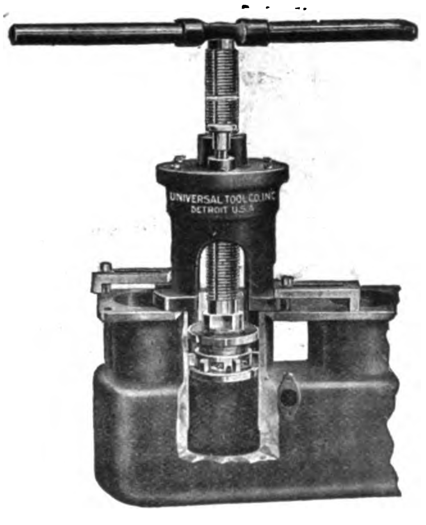
Manufactured by Vulcan Machine and Tool Co., St. Louis, Mo. Price quoted at request.


DIXON'S GRAPHITE Automobile LUBRICANTS
HELP YOU HEAR YOUR CAR
PROPER LUBRICATION FOR YOUR AUTOMOBILE
DIXON'S GRAPHITE AUTO LUBRICANT
JOSEPH DIXON CRUCIBLE COMPANY, JERSEY CITY, N. J.

Dixon Counter Display. A new and attractive counter display is being sent out by the Joseph Dixon Crucible Co. to enable the dealers to sell more of Dixon's lubricants. The rack is of metal and enameled in red and black. On the back, for use by the dealers and salesmen, is a chart showing the various uses of the different kinds of lubricants. On the front are spaces for displaying booklets and glass jars containing samples of the lubricants.

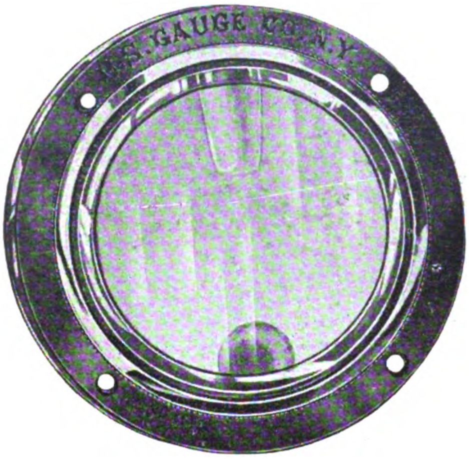
All dealers that may be interested in obtaining one of these racks are requested to write to the Joseph Dixon Crucible Co. of Jersey City, N. J., Dept. H.

The Universal Cylinder Reboring Tool is simple in design and effective in action. The cutter head has six cutter surfaces that are adjustable in unison. A bevel expansion ring is fitted into the cylinder which is to be rebored and the bevel pilot head acts as a centralizing device. There is also an oversized securing ring, which follows the new cut, thus insuring an absolute rigid tool and perfect central device. This tool is intended to be used either by hand or under a drill press and on detachable head cylinders the reboring can be done without removing the cylinder block from the car. The operator can set the cutters at any desired size within one-half of one-thousandth of an inch, enabling him to rebore the cylinder in one operation to fit pistons already made regardless of the oversize of the pistons. The value of this tool in a service station or repair shop is largely in that it is available at any time without power and the adjustments for work can be made without chance of error.



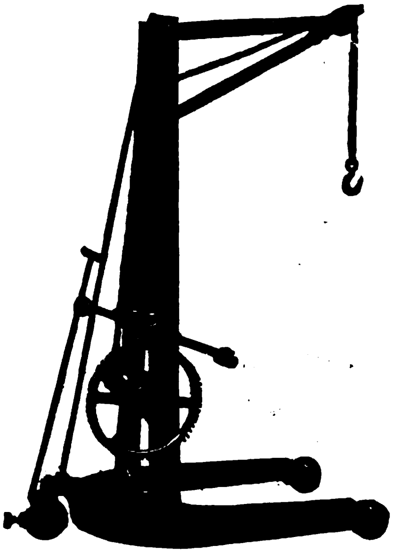
Manufactured by the Universal Tool Co., Detroit, Mich. Price quoted at request.

The U. S. Dash Board Sight Feed Oil Gauge shown in the accompanying cut has a heavy cast case and ring. The flanges are cast solid to the front part of the case, permitting it to be mounted practically flush on the dash. The interior of the case is finished in white enamel. This gauge matches in sizes, shape and finish the company's 1913 design automobile pressure gauges and can be mounted with the other, retaining a uniform and elegant finish on the dash. They have standard connections, ⅛ inch female pipe thread on the inlet and ¼ inch on the outlet.



Manufactured by United States Gauge Co., 67 Wall St., New York City. Price with two-inch dial finished in brass, $4; nickel finish, $4.60.

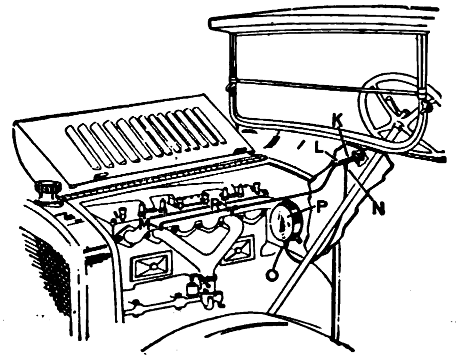
The Portable Floor Crane has many uses and the saving of time accomplished by its employment makes it almost invaluable where much automobile or machine work is done. The crane illustrated is made of steel with a cast iron base. Standard cranes are made in a number of sizes and have capacities ranging from one to two tons, with lifts from 6½ to 9½ feet according to size. The length of overhang is 30, 34 or 36 inches.



Manufactured by the United Engine and Manufacturing Co., Hanover, Pa. Price quoted at request.

Imperial Primer. A device which is claimed by the manufacturers to do away with all starting troubles due to excessive and low temperatures, is known to the trade as the Imperial Primer. This device is designed for practically any car and consists of an auxiliary or priming tank S, in which is carried a supply of high test gasoline, a priming pump K, which is connected with the manifold at one or more points.

One stroke of the pump plunger is said to force a finely atomized spray of fuel into the manifold, which furnishes the necessary vapor for th first two or three explosions; after which the engine is warmed enough to vaporize the fuel from the carburetor.

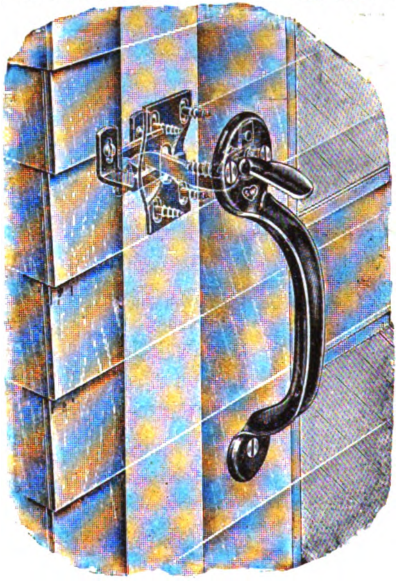


All tube connections are made by means of compression couplings, so that soldering, flaring, etc., are eliminated. The only change required in the engine is the boring and tapping of the ⅛ inch holes in the manifold.

Though the best results are obtained when high test gasoline is used in the priming tank, low test gasoline may be used with satisfactory results.

Manufactured by the Imperial Brass Manufacturing Co., 517 S. Racine Ave., Chicago, Ill. Price complete, $6.

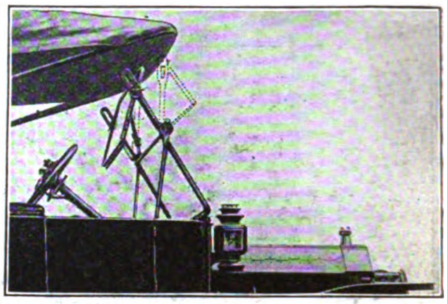
Wrought Steel Back Catch. The Stanley line of garage hardware has been extended by the addition of a wrought steel back catch for 1¾-inch garage and barn doors. The catch holds the door firmly against the side of the building. Opening the door forces the stout hook over the catch plate, where it is held by the double leaf spring. Slight pressure on the thumb piece releases it. When the door is swung open its momentum is checked and absorbed by the escutcheon plate, which is struck up and takes the shock off the hook. The screw holes in the catch plate are slotted so that it can be adjusted to meet the bumper squarely. They are furnished in either Stanley japan or sherardized finishes.



Manufactured by the Stanley Works, New Britain, Conn. Price quoted at request.

Banker Windshield. Riding in the front seat of a Ford on a hot day, the discomfort due to the lack of circulation of fresh air, a rain storm makes it necessary often to put down the windshield on account of the inability to see the road ahead through the moisture accumulated on the glass, thereby subjecting the operator to the unpleasantness of getting wet.

The Banker Windshield was designed to overcome these conditions. This attachment will convert a standard Ford shield into one that may be easily and quickly adjusted to many different positions. It is simple to replace the present hinges with a Banker attachment. The same screws and screw holes are used and the exchange can be made without even taking the windshield off the car. It can easily be done in a short time by anyone. The hinges are of the friction type and by a slight turn of the wing nuts the upper section of windshield can be adjusted to any position.



Manufactured by the Banker Windshield Co., Pittsburgh, Pa. Price, $1.50 per set.

Century Cigar Lighter. For the touring motorist there are few accessories quite so convenient as an electric cigar lighter. It makes no difference what speed the car is going or how brisk the wind is, such a device makes the lighting of a cigar an easy matter. The Century Cigar Lighter is made to operate on a six-volt storage battery, it is neat in appearance, being finished in black leather with nickel trimmings. It is equipped with seven feet of silk cord, a push switch, and may be attached in a very few minutes.

Manufactured by Mabey's Electric and Manufacturing Co., Indianapolis, Ind. Price complete, $1.

The Dyer Lightweight Piston is designed to fill a want for a light yet strong piston for Ford cars by the owner who is remodeling his car. The piston is made of a specially tough metal carefully machined and has special oiling features. These pistons are made in standard and oversizes and are sold complete with wristpins and rings. Each piston weighs 2¼ pounds, or one pound less than the Ford piston. In addition to the extreme light weight is the feature of uniform balance; each piston is limited to a variation of two ounces.

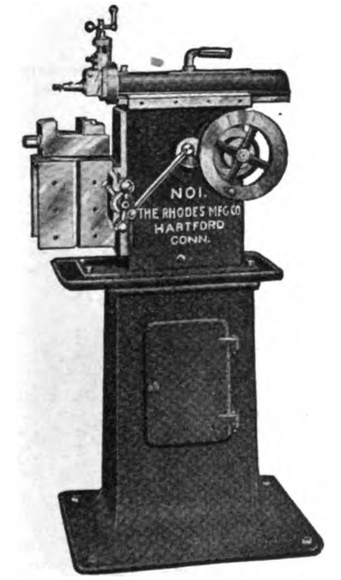
Manufactured by the G. H. Dyer Co., Cambridge, Mass. Price quoted at request.

The Vaporspray is a scientifically designed apparatus for applying paint. The device is in effect a large air brush operating from pressure from 10 to 100 pounds. It is simple, for it has absolutely no adjustments to be made. The size of the spray is regulated by pressure exerted on the thumb button. The further the button is pressed the faster the fluid will flow. Another feature is the fact that the reservoir is an ordinary Mason jar, which can be obtained at any hardware store, thus making it possible to use any number of jars which may contain various liquids. The equipment includes six feet of high pressure hose and connections.

Made by Vapor-Valve Co, 2820 N. Spring Ave., St. Louis, Mo. Price, $16.50.

Rhodes Horizontal Shaper. Next to the milling machine there is no machine tool that can be used for such a variety of small work as the shaper. With this tool many small jobs, such as planing, grooving, cutting keyways, etc., can be accomplished very quickly. The Rhodes Shaper illustrated is designed for small work and fitted with a sliding bed, upon which is mounted a revolving vise table. The cutting tool has a seven-inch stroke.

A particularly pleasing feature of this machine is that it may be converted into a 3½-inch vertical slotter, adjustable to 10 degrees, simply by removal of the traveling table and attachment of the vertical shaper arrangement.



The workmanship and materials entering into the construction of this machine are of the best. All parts are accurately machined and fitted.

Manufactured by the Rhodes Manufacturing Co., Hartford, Conn. Price quoted at request.

The Guarantee Visible Pump consists of two separate and distinct units, a measuring unit designed for use outside the garage or filling station and a pumping unit consisting of a rotary section pump, driven by an electric motor through a silent chain. The whole pumping unit being mounted on a cast iron base suitable for location in any convenient place. The container at the top of the pedestal is of glass protected by a guard of expanded metal and marked to measure from one to five gallons. Opening into this container and extending down through the pedestal is a one-inch stand pipe, which connects with the gasoline supply line. This stand pipe can be raised or lowered and set in a measuring stop so as to adjust the height of the open end inside the container to correspond with the gallon marks on the glass. The measuring is automatic, thus eliminating the human element and insuring absolute accuracy. The pipe to the right of the container is a conduit which carries the wiring from both the motor and the light globe. The pipe to the left of the container is a vacuum line extending from the top of the container down through the pedestal and connecting to the exhaust end of the rotary pump. The small steel ball when raised closes the switch operating the motor and also operates the valve controlling the vacuum. The makers claim a guarantee of one year against defects and workmanship.

Manufactured by the Guarantee Liquid Measure Co., Pittsburgh, Pa. Price quoted at request.

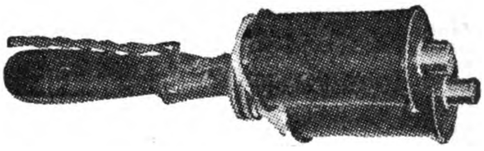
Rofilo is an ingenious little device for the elimination of work in grinding valves. It consists of a steel frame carrying 24 small rolling files, set in the frame at the angle of the valve face. Rofilo is placed in the valve seat and the valve is replaced with its face resting upon the files in the cage. The valve is then revolved in one direction at high speed with an electric or hand drill. The files roll between the valve and seat faces and the cutting action results from the tendency of the files to adjust their single peripheral speed to the many peripheral speeds along the conical face of the valve and seat. There is the same amount of slippage between the files and seat, with the result that the cutting action on both surfaces is simultaneous and equal, resulting in a smoothly cut or filed surface on both the valve and the seat, the two surfaces being parallel.

Distributed by the Rofilo Sales Co., 1317 L. C. Smith Building, Seattle, Wash. Price quoted at request.

Automobile Bucket. No automobilist can afford to be without some means of filling his radiator should it become dry. The illustration shows a handy bucket that will hold about one gallon of water, yet can be folded flat when empty and carried in the pocket. It is made of a special dull finished water proof duck and so designed that water can be poured from it into the filler of the radiator without the use of a funnel.

Manufactured by the Martin Manufacturing Co., Lancaster, O. Price, 50 cents.

The Midway Ford Special Magnetizer is a portable instrument for remagnetizing the magnets of a Ford magneto without disassembling the car and removing the magnets from the flywheel, and is operated with current from storage batteries, dry cells or through a resistance bank direct. It consumes only a small amount of current and is very simple to operate. There is nothing to get out of order and the magneto or instrument cannot be injured by any mistake in using it. It is simple to remove the flywheel cover and hold the ends of the remagnetizer against the ends of the magnets and turn on the current until charged.

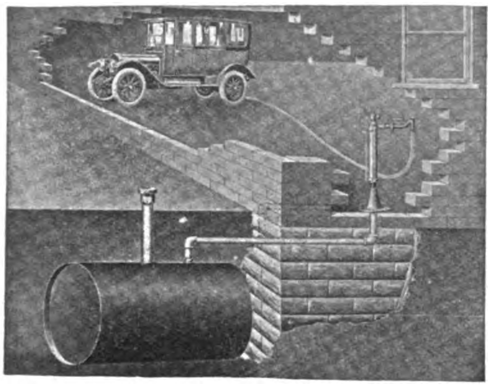


Manufactured by the Midway Mechanical Co., 1555 Selby Ave., St. Paul, Minn. Price quoted at request.

Dover Truck Funnel. Designed to meet the demand for a special heavy truck funnel in the garage, the Dover truck funnel deserves attention. This funnel is made of very heavy steel and galvanized. The spout and lower part of the body is beaded so that it will not become air bound in any size opening. It is fitted with fine brass strainers and also with a hoop to hold chamois.

Manufactured by Dover Stamping and Manufacturing Co., Cambridge, Mass. Price for four quarts, $1.25; for eight quarts, $1.50.

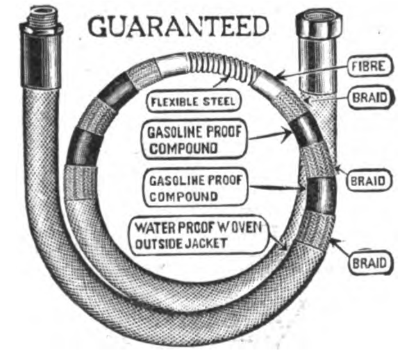
Gasoline Storage Outfit. Few garage owners realize that the storing of gasoline plays an important part in the performance of the car. If left exposed to air circulation a portion of the gasoline vaporizes, leaving the less volatile part. When this gasoline is used in the engine, starting is made difficult. Another argument for proper gasoline storage is the elimination of fire hazard from this source.



The Scaife Gasoline Storage Outfits are a practical system for storing gasoline. The tank may be placed outside the garage and below the surface of the ground, the filler and vent also outside, the pump connection through the side of the garage and the pump at any point inside the garage. The tanks are made from heavy galvanized iron, painted on the outside with rust proof paint. The heads and seams are welded to the shell, making the tank practically leak proof. Before leaving the factory each tank is subjected to a compressed air test. The filler pipe is fitted with cap and lock and designed to act both as strainer and vent. The pump faucet, cylinder and inside parts are made of brass, handle and foot plate of galvanized iron. Each pump is fitted with an anti-drip faucet, shut off and padlock.

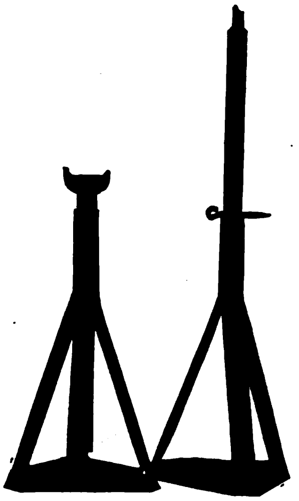
Manufactured by Wm. B. Scaife & Sons Co., First National Bank Bldg., Pittsburgh, Pa. Price quoted at request.

Everlasting Hose. This is a flexible gasoline hose in which no rubber is used; at the same time, however, it has the flexibility of rubber tube. It is constructed of a flexible steel core, covered with two plys of gasoline proof compound. Outside of this is a braid covering, which is protected by the final outside covering of water proof woven fabric. This hose is guaranteed for one year and is sold in any length and is made in two sizes, with couplings attached.



Manufactured by Chicago Tubing and Braiding Co., Chicago, Ill. Price, ¾ inch size, $1 per foot; 1¼ inch size, $2 per foot; couplings extra.

Welded Steel Blocking. Proper repair work is entirely dependent upon the mechanic's comfort and the accessibility of the part upon which the job is being done. No mechanic can be expected to do good work if he is forced to lie on his back beneath a machine that is supported by bulky and cumbersome planks, boxes, etc. The illustration shows the Dyer welded steel blocking, which is designed for supporting machines while work is being done on them. Being light and open in construction they take but a minimum amount of floor space, yet offer sufficient base support. They are designed for strength and soon pay for themselves by the time saved in placing them, as against that taken in placing heavy blocks and wood planks. Being adjustable to height, the work can be placed and raised to the most convenient position.



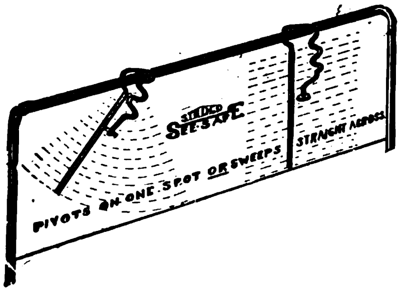
Manufactured by the G. H. Dyer Co., Cambridge, Mass. Price quoted at request.

Electric Glue Pot. An accessory which is bound to be of much value in any garage is known as Mabey's Electric Glue Pot. This glue pot is said to be extremely economical, due to the fact that the consumption of current is kept down to a minimum because the insulation prevents loss of radiation. The fire hazard, which should be kept down in a garage, is eliminated by this form of heater, which generates neither soot nor smoke.

The heat retaining jacket is construçted of heavy ingot iron, finished in black enamel, with copper glue cup and wiping rod. Each pot is supplied with a six foot cord, plug and three-heat switch for 110 volt circuit. It is made in four sizes from one to four quarts capacity.

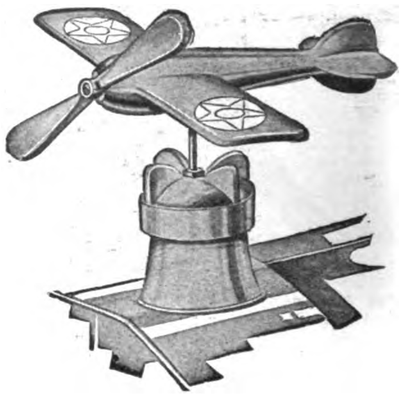
Manufactured by Mabey Electric and Manufacturing Co., 968 Fort Wayne Ave., Indianapolis, Ind. Price quoted at request.

See-Safe Windshield Wiper. An extremely low priced windshield wiper and cleaner is introduced under the name of "See-Safe." This device is so arranged that it may be drawn across the windshield, cleaning a rectangular space, or pivoted upon the top and swung in a half circle.


STADECO
SEE-SAFE
PIVOTS ON ONE SPOT OR SWEEPS STRAIGHT ACROSS

Every driver who has driven in a rain or snow storm and been forced to put his head out past the windshield in order to see the road ahead, realizes the value of a device for keeping the windshield clear.

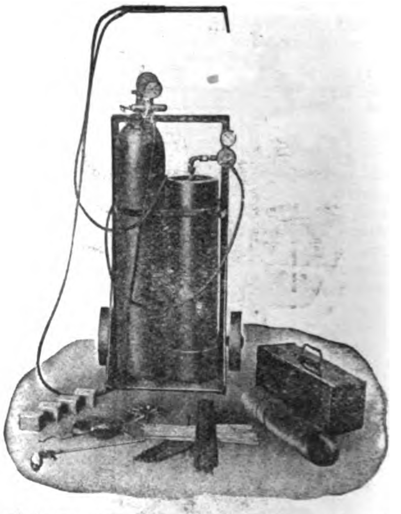
Manufactured by Stadeker Metal Specialty Co., 19 S. Fifth Ave., Chicago, Ill. Price quoted at request.



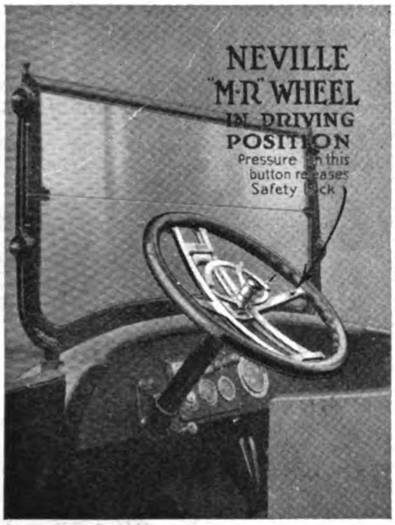
"The Liberty Plane" is both one of the latest and most attractive radiator ornaments and is new and original. It suggests patriotism in a manner that is easily recognized, pleasing, yet different. It is an exact miniature of the aeroplane, cast in aluminum, highly polished and decorated with the flying emblem in red, white and blue enamel on each wing. It will not wear out and is weatherproof.

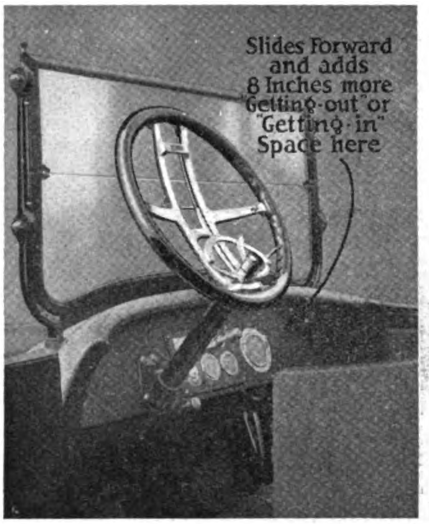
Marketed by the Defender Auto Lock Co., Inc., Marquette Bldg., Detroit, Mich. Price quoted at request.

The Dyer Welding and Carbon Removing Outfit has two utilities included, that of welding and cutting by the oxy-acetylene process and of removing carbon from the combustion chambers and cylinders of engines. With this apparatus the garage man and repair man can quickly and satisfactorily do all kinds of brazing, welding of broken parts, frame straightening and many other things requiring the use of a welding outfit. The material used in this outfit is of the highest grade. The regulators are strongly built and accurate. The Dyer company uses the United States Gauge Co.'s gauges, and the hose used is of extra heavy five-ply fabric. The outfit includes a truck made of the best grade of boiler plate strongly welded. The torches are simple in construction and easily handled, being of light design and highly efficient. The welding torches cannot backfire under any circumstances and can be operated to a low enough acetylene pressure to practically empty the gas cylinders.



Manufactured by the G. H. Dyer Co., Cambridge, Mass. Price quoted at request.

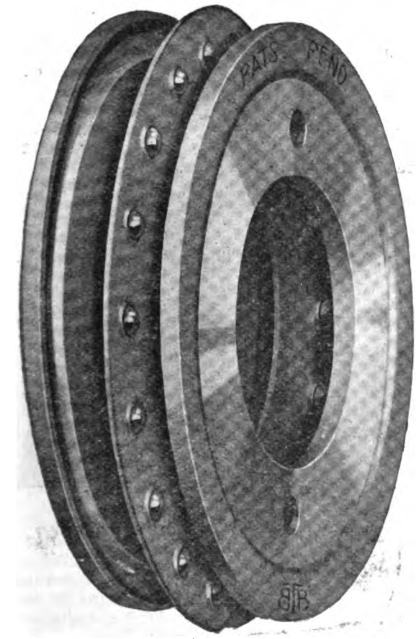




Neville More-Room Wheel. Much of the awkwardness and confusion attendant upon the climbing over the passenger on the front seat of an automobile could be eliminated if a tilting wheel were employed. The Neville More-Room Wheel is operated merely by pressing a button, releasing the lock which ordinarily holds the wheel perfectly rigid and permitting the same to be pushed forward eight inches. This wheel is made in sizes to fit nearly any car and in two styles. One has a polished aluminum center with mahogany rim and the other a plain malleable iron center finished in black.

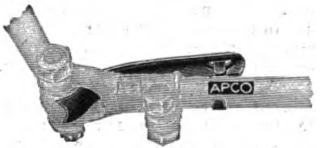
Manufactured by Neville Steering Wheel and Manufacturing Co., Congress St., Detroit, Mich. Price quoted at request.

The Bailey Ball Thrust Bearing is designed for Ford and Chevrolet 4-90. In these cars the thrust of the drive gear is taken up by steel washers having a sliding contact. If for any reason these washers wear thin the drive gear is allowed to slip away from the pinion; the gears then being partially out of mesh, the drive is taken on one tooth instead of two and on the weak part of the tooth. This may cause the gears to strip or break, resulting in other axle trouble. If this happens replacement is necessary. It is the function of the Bailey Ball Thrust Bearing to take up this thrust. Our two illustrations clearly show the construction and application of this bearing.

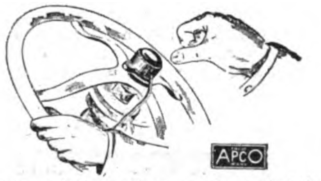


Distributed by Ahlberg Bearing Co., 2636 Michigan Ave., Chicago, Ill. Price quoted at request.

Two New Apco Specialties for the Ford car are just being put on the market. The first is a spindle arm anti-rattler or silencer, which is designed to prevent movement and rattling of the spindle arm bushing. The device consists of two heavy formed springs so arranged that undue movement of the spindle arm is prevented. It is neat and compact and can be quickly attached with the fingers. The device is packed in a box and when packed weighs two ounces.

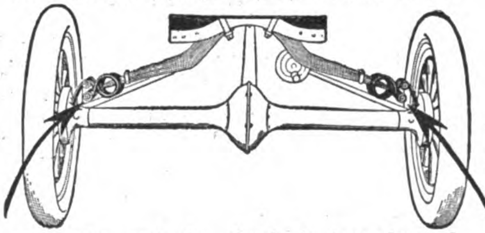


The horn button attachment, which is designed to hold the horn button on the center of the top of the steering wheel, as manufactured at present consists of a complete unit with button, and is finished in black enamel. When packed in a box its shipping weight is two ounces.

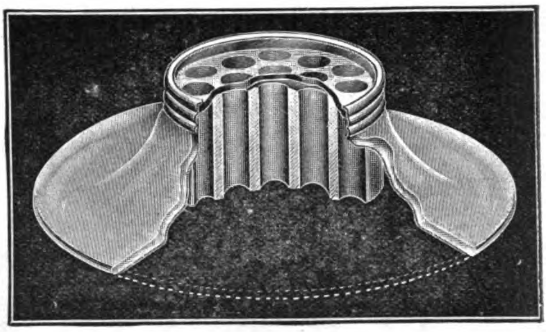


Manufactured by Apco Manufacturing Co., Providence, R. I. Price for anti-rattler, 40 cents a set; for horn button complete, 50 cents; horn button attachment without button, 25 cents.

Twin Spring Shock Absorbers for Fords eliminate jolts, jars, strains and vibration. The Twin Spring is a supplementary spring, instantaneous in its action, leaving the leaf spring free to perform the work for which it was designed. Every road shock coming from the wheels passes through the coil springs on its way to the car body, and the shock is transformed and the life taken from it without in any way disturbing the action of the leaf springs. They are easily and quickly applied in 30 minutes to any type of car spring, and once adjusted never change their position.



Manufactured by the Twin Spring Co., 1000 Boylston St., Boston, Mass. Price, $10 per set (rear) for Fords and all cars.



The Way-A-Head Auto Lens, as the name indicates, is designed to concentrate sufficient light on the road way ahead of the car to make riding in the country safe. It is said that typewritten matter may be easily read by the light of this lens at a distance of 400 feet. To accomplish this result the light is guided and controlled by means of 19 long, narrow holes, formed through the body of glass in the lens. Each hole acts as a telescopic tube in passing a narrow beam of light with very restricted spread. For nearby light the center hub or group of holes is surrounded by a bowl shaped disc of glass, formed in one piece with the center nozzle, with all of its surface frosted, making the softest possible light, yet illuminating both curbs of the street.

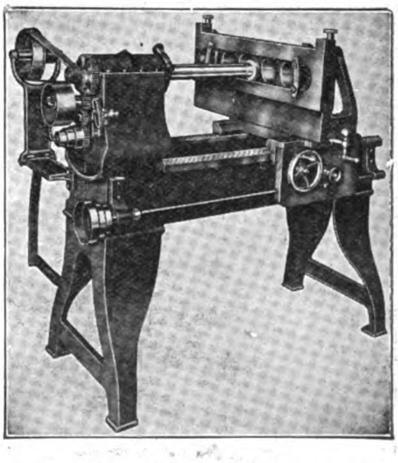
A polished plate glass cover, held in place by means of a nickel plated ring, is provided to keep dirt out of the holes.

Manufactured by Way-A-Head Light Co., Pittsburgh, Pa. Prices ranging from $5 to $6.50, according to size.

Cylinder Grinding Machine. A cylinder regrinding machine designed for grinding gasoline engine cylinders from the smallest motorcycle type to a six-cylinder block 31½ inches long is being manufactured for use in repair shops and garages, where there is a call for repair work of this sort.

The bed and legs are of the conventional type and designed to eliminate all possible vibration. The boring spindle, which is designed for strength and rigidity, is 4¾ inches in diameter by 10½ inches long and carried upon heavy bearings.

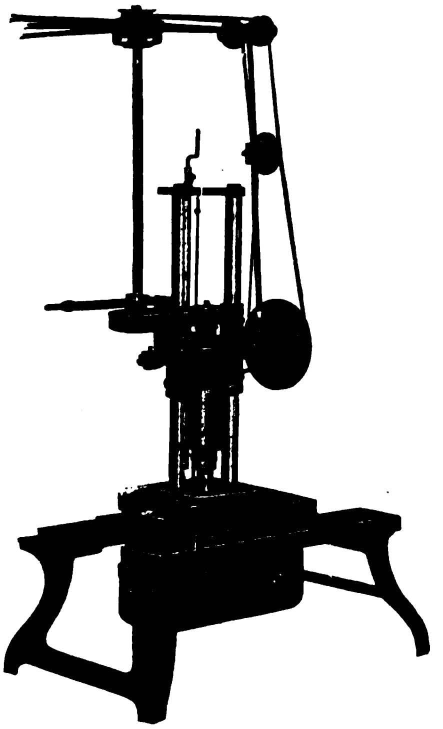
The face plate upon which the cylinder block is mounted while being ground is large and heavy, and has both a cross and lengthwise feed, the latter being automatic. It is also fitted with two knurled nuts by which the plate may be raised or lowered, thus facilitating the centering of the cylinder.



The length of the bed is 66 inches and the width 15½ inches. The height from the bed to the center of the spindle is 12 inches. The whole machine occupies a floor space of approximately three by five feet.

Manufactured by the B. L. Schmidt Co., Davenport, Ia. Price quoted at request.

A Cylinder Grinder is shown in our illustration, with which it is possible to grind holes from two inches to six inches in diameter and up to 18 inches in length. The equipment consists of two spindles for different sized holes and three grinding wheels of different sizes. The grinder has two speeds for grinder wheels, 4500 and 6800 revolutions per minute. The countershaft is equipped with tight and loose pulleys six inches in diameter for three-inch belt and is designed to run 600 revolutions per minute.



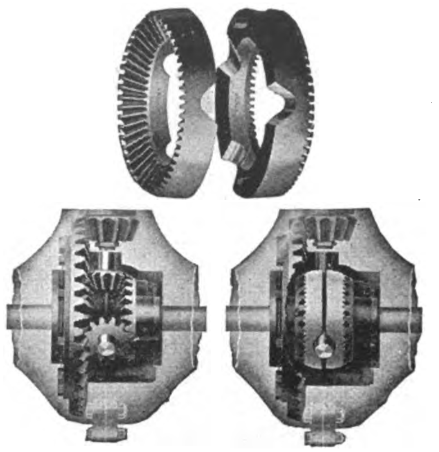
This machine has an automatic raising and lowering clutch and micrometer adjustment of grinder can be made instantly at any time. About one-half to one horsepower is required, depending upon the depth of cut taken. The table is 36 inches long by 24 inches wide and 24 inches high.

The makers cover the machine with a broad guarantee.

Manufactured by Pennypacker Mfg. Co., Los Angeles, Cal. Price quoted at request.

The Handy Service Cabinet, illustrated herewith, is particularly suited to the requirements of the small private garage, repair shop and supply store, for taking care of screws, bolts, nuts, small repair parts or spark plugs. It is substantial and well finished, the front and sides are varnished oak. There are 12 small drawers, three by three by 12 inches, and three larger drawers six by three by 12 inches. The sides and bottom of the drawers are made of galvanized steel, dust proof and guaranteed not to stick. Each drawer is fitted with a combination pull and card holder, and a full set of blank cards are furnished. On the side of each drawer is a square label for stock record.

Manufactured by Stevens & Co., 375 Broadway, New York City. Price to dealers, $5.



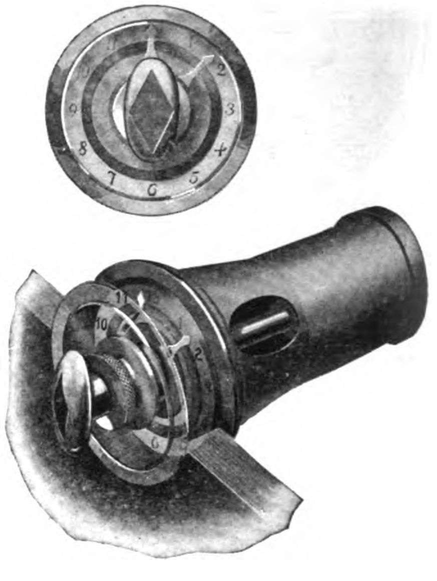
The Badger "Two-Wheel Drive" Differential always applies the power on the wheel offering the greatest resistance. This means that the car is held steady and true to the line of drive. On a slippery surface, or when traveling in sand or mud, the wheels take the full power of the engine, thereby eliminating waste of power and wear on the tires through the spinning of one wheel. The car holds the road no matter how sharply crowned, muddy or slippery. The makers claim it is easily installed by simply taking out the three pinion gears and inserting the two Badger gears, using the same spider. The illustration tells the whole story. It is claimed that any Ford owner can do the work with his regular set of tools, or the garage can do it in from two to three hours. An attractive offer is made distributors and dealers to handle the Badger Differential.

Manufactured by the Lewis Differential Co., Milwaukee, Wis. Price quoted at request.

Dover Light Bulb Case. Stringent laws exist in practically every state relative to lights on automobiles. To drive an unlighted car after dark is a criminal offense and punishable by heavy fines in most states. To avoid the annoyance and pecuniary losses entailed by the burning out of bulbs and the attendant unlighted condition, every owner should always carry a complete set of spare bulbs. To carry the bulbs in the tool box in a loose state would undoubtedly result in their breakage, so the Dover electric light bulb case has been designed. The case is made of extra heavy steel and seamless. The bulbs are held in place by spring clips and it is said that they are kept in better condition than those on the car in use. The dimensions of the box are 5⅝ inches long, 3¾ inches wide and 3⅜ inches high. The cover is fitted with an automatic spring catch.

Manufactured by Dover Stamping and Manufacturing Co., Cambridge, Mass. Price quoted at request.

Automatic Light Control. In practically every state of the Union there exists laws which require automobile head and tail lights to be lighted at dark, imposing fines upon those who do not comply with the law. If the automobile is parked upon the street this means that the owner or operator must take the time to go out and light his lights, or have them lighted. To obviate this the Semco Automatic Light Control has been designed. This device consists of an indicator dial which is marked with 12 numbers, denoting the 12 hours, and fitted with two hands. When the operator wishes the lights lighted at a certain time he turns the knob until the hands indicate the proper time. At the setting of the device a plunger starts working and at the predetermined time electrical contact is made, lighting the lamps.

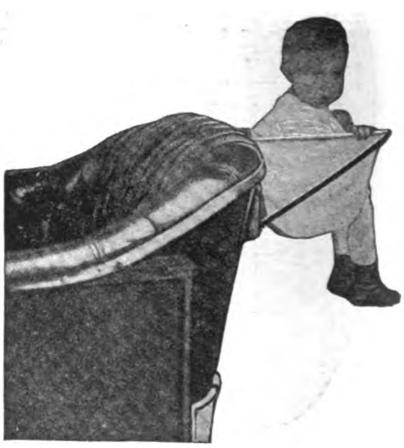


Manufactured by the Standard Electric Mfg. Co., 846 Massachusetts Ave., Indianapolis, Ind. Price quoted at request.

Rock-A-Bye Auto Seat. A unique contrivance, known as the Rock-A-Bye Auto Seat, is being marketed, which is designed to increase the comfort of the "smallest passenger" in the automobile.

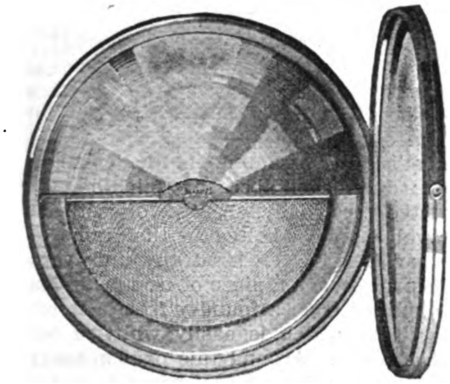
This device consists of a brown washable duck basket, mounted on an enameled steel frame, the basket containing two holes through which the baby's legs protrude.

Two small steel cleats, three inches long, are furnished with the outfit, which can be permanently attached in a few minutes on any automobile to the back of the front seat, in which the hooks of the seat are engaged and sustained. All of the parts that come in contact with the polished surface of the seat are protected with soft rubber bumpers to prevent the marring of the surface.



The device is easily and quickly attached or detached, and when not in use folds up and fits under the seat. It is said to be absolutely safe and is strongly constructed.

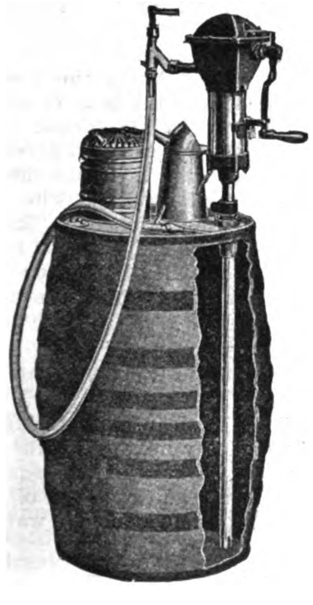
Manufactured by the Perfection Manufacturing Co., 2700 N. Leffingwell Ave., St. Louis, Mo. Price quoted at request.



Raydex is an all-metal, cellular device, which is placed in the upper half of the headlight behind the regular glass door. It contains more than 9000 metal reflectors, approximating nine square feet of polished reflecting surface. By means of this device all the rays which normally rise above the 42 inch level and cause glare are deflected and projected upon the road so that an even, clean cut illumination is obtained from the very front of the car to a distance of 500 feet or more. Raydex being composed entirely of metallic reflecting surfaces greatly increases the illumination on the road without requiring increased candle power in the lamp, because it saves light which is usually diffused and projects it upon the road where illumination is required.

Manufactured by the Omolite Co., Inc., Jamestown, N. Y. $6 per pair for all standard cars. Ford sizes, $5.50.

The Groetken Automatic Measuring Barrel Pump can be attached to any shipping barrel of iron or wood, ready for instant use. It pumps and measures liquids in one operation direct from the barrel into container or through a hose into an automobile tank and can be both used stationary or portable. A special barrel cart or dolly barrel truck is made by the manufacturers of this pump, which converts the entire equipment into a portable outfit. The pump is iron threaded with a tapered sleeve bung that will fit any iron or wood barrel bung hole 1⅛ to 2¼ stand pipe opening. It adjusts itself to height, set screws tighten up on suction pipe holding pump firmly to barrel. This pump gives instant service for automobile oils, one turn of crank displacing one pint, two turns, one quart and so on up to five gallons and repeat. All cranking revolutions are recorded on the register, plain reading of black and white figures on an enameled dial face. The cylinders are seamless brass tubing with an adjustable brass crankshaft, brass valves and the body of pump is close grained iron.



Manufactured by the Groetken Pump Co., Aurora, Ill. Price quoted at request.

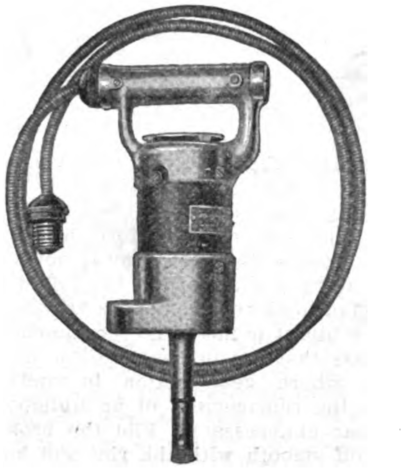
The Stow Electric Buffer, originally designed for buffing the bright surfaces of automobiles, has many uses around the shop or garage. The outfit consists of an electric motor, which may be had to operate upon any voltage or cycle, direct or alternating current, direct from a lamp socket; a flexible shaft, clamp spindle and connections; also one 3x1 inch buff and one 4x1 inch buff.

In addition to its usefulness as a buffing device for shining brass and metal work, it may be used with small grinding wheels as well. The small size machine takes wheels up to and including 2½x4¼ inches, while still heavier machines are made to take wheels up to and including 4x4¾ inches. Proportionately large buffing wheels may be used.

Manufactured by Stow Manufacturing Co., Binghamton, N. Y. Price quoted at request.

The Ajax Touring Refrigerator is made in trunk form and contains three compartments, two for eatables or bottled goods and the third for ice with a threaded compartment to prevent water leakage. It attaches to the running board and is air tight and dust proof.

Manufactured by the Ajax Trunk and Sample Case Co., 144-150 West 18th St., New York, N. Y. Price, $20.



The Stenman Electric Valve Grinder has been wonderfully improved by several convenient and practical features, which includes a larger handle, giving a better grip and balance with switch in the handle, at the finger tips and affording perfect control; flexible steel conduit for connection wires, which is galvanized and insulated, similar to that used on speedometers and which will not break or crack like ordinary cable. This cable is fitted with separable attachable plugs of a special composition and detachable both at the handle and lamp socket. All the gears are made extra heavy of phosphor bronze.

It is designed to save labor in valve grinding and will handle truck, tractor, aeroplane, marine or stationary internal combustion engine valves. This machine will operate from either direct or alternating current and can also be operated from any standard lighting circuit. Any valve can be reground in either the L, T or I head construction and the valve seat renewed in from three to five minutes as compared with from 15 to 20 minutes required with hand tools. It is now being used by the government at Camp Devens, at various aviation fields and by such concerns as the United States Steel Co., the Western Electric and Standard Oil companies and numerous garages throughout New England and New York state. It is thoroughly practical for any size establishment.

Manufactured by the Stenman Electric Valve Grinder Co., Inc., 42 Southbridge St., Worcester, Mass. Prices quoted at request.

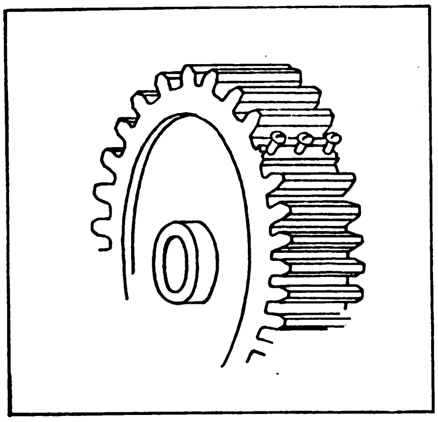
The Cathedral Bell. A warning signal that is somewhat different from the usual signals is termed the Cathedral Bell. It is said that the tone is distinctive, unmistakable, yet musical; warning, yet does not offend. At the same time the signal is sounded a brilliant red light is flashed through the lens surmounting the bell. By this means the warning is conveyed to both the eye and the ear.

Manufactured by the Cathedral Bell Manufacturing Co., Baltimore, Md. Price quoted at request.

Practical Kinks for Repairers

GEAR REPAIR.

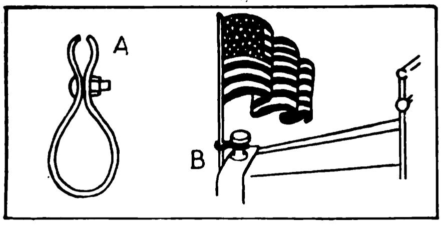
Oftentimes the tooth of a spur gear on the air pump or an accessory is broken off through carelessness. Unless repaired a new gear is necessary before the pump can be used. When the gear is not subjected to very great strain the following method of tooth replacement is very practical. While it is not to be recommended for gears that are in constant use or in places where gear action is vital, it makes the replacement of an unimportant gear unnecessary. File the broken tooth off smooth with the rim and bore holes about ⅜ inches apart across the face of the gear. The size of the holes to be not greater than the width of the narrowest part of the tooth. After having tapped the holes insert round headed screws through the rim, upsetting the ends with a nail set or punch so that they will not loosen. Then file the heads to conform with the general shape of the teeth, trying it in place from time to time. Such a temporary repair can be made in a very short time and may be improved at a later date by filing a new tooth out of iron and screwing it in place in the same manner.



Temporary Gear Repair.

FLAG HOLDER.

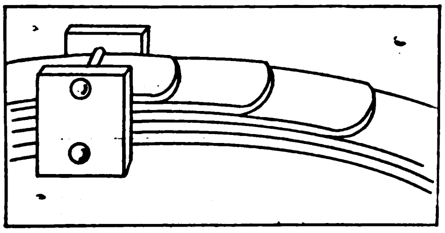
"Be patriotic and show your colors on your automobile," is the general slogan of all Americans today. Anyone can make a flag holder for attaching a flag to the filler cap of the radiator at a very small cost. Get two short pieces of strap iron about ¾ by ⅛ inch and bend them in the shape shown in the illustration. Drill a ¼ inch hole through them and insert a bolt. Remove the radiator filler cap, place the large bend over the filler and with the bolt in position clamp the flag and fitting into place as shown at B.



Flag Holder.

SPRING LUBRICATORS.

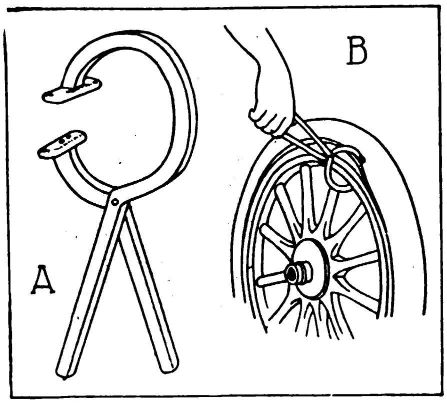
The life of car springs may be materially lengthened, the riding qualities of the car improved and many squeaks eliminated by keeping the springs well lubricated. Each spring should be kept oiled by using a device upon it as illustrated. With two bolts fasten a piece of brass or thin wood strip upon each side of the spring, placing a thin strip of felt between the device and the spring leaves. Apply a sufficient quantity of oil to the felt strip to saturate it and run the oil along the leaves where they contact. The felt forms a sort of reservoir and the oil is fed to the spring leaves in small quantities by capillary action.



Spring Lubricator.

CLINCHER TIRE REMOVER.

The majority of motorists experience difficulty when attempting to pry the clincher shoe away from the rim so that the tire tool can be inserted. There are several devices now on the market for facilitating the removal of this type of shoe, but if the motorist does not feel disposed to expend the necessary amount, a tool similar to the one shown can easily be made. It is made of one-inch square steel. The construction consists of two tong like extremities having handles, which, when brought together, overcomes the resistance of the shoe even when badly rusted to the rim. Be sure to round off all the sharp edges of the tool so that it will not cut into the shoe. The pieces which contact with the tires are attached with screws to the end of the jaws. The method of application to the tire is as shown.

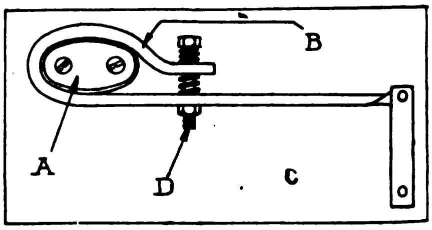


A Simple but Practical Clincher Tire Remover, and How It Can Be Used.

SHOCK ABSORBER.

A subscriber residing in Rhode Island has made a shock absorber which he constructed very easily. A piece of cast iron of oval shape is bolted to the frame of the car (see "A."). Most any junk yard will furnish such a piece of iron, or it can be obtained from a foundry from a wooden pattern which is easily whittled out with a knife. Around this oval a heavy piece of iron is bent. One end of the iron is twisted at right angles and fastened to a shorter length of iron, "C," by a single bolt. The other end is looped over and a bolt passed through it, fastening it to itself, as at "D." A spring is placed between the end of the bolt and the iron and also between the end of the iron and the bar itself.

The free end of "C" is fastened by a single bolt to a clip on the axle. To give good service the iron should be about ⅜ inch thick, 1½ inches wide. The oval should be about three by two inches. The distance between the outer edge of the oval and the center of "C" should be about eight inches.



Shock Absorber.

When the car is at rest with no load the absorber should be in the position shown in the cut. As the body of the car drops the oval is slightly turned on its center, bringing a pressure with friction on the arm, which tends to pull the oval back to its normal position. The same thing happens when the car "jumps." The action of the shock absorber is controlled by the tension of the iron strap on the oval, which is adjustable at the bolt "D."

MILLING CUTTER LUBRICANT.

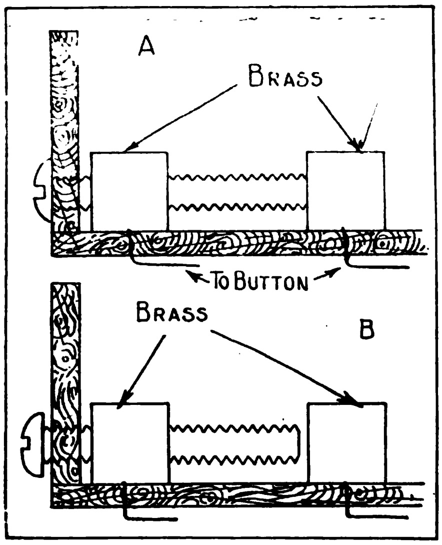
An excellent lubricant for milling cutters can be made by mixing together and boiling for about a half hour one-quarter pound sal soda, one-half pint lard oil, one-half pint soft soap and enough water to make 10 quarts.

CLEANING THE HANDS.

A repair man in Massachusetts advises that the appearance of a mechanic's hands can be much improved by cleaning them in the following manner: Rub ordinary soap well into the pores of the skin and with the aid of a little gasoline, form a lather by rubbing the hands together. The hands can then be washed in the ordinary manner. A brush with stiff bristles will greatly aid the cleansing operation.

THIEF WARNING.

There is an old saying that "Honesty is the best policy," another to the effect that there is honor even among thieves. It seems as though both of these time worn adages have been placed on the out of order list, as the number of automobile thefts are constantly growing. How to foil the auto thief is a big problem that is attracting much attention at this time. A novel device is used by one of our subscribers that certainly will cause the would-be thief considerable alarm and a big surprise if he should make an attempt to take the car away. At point where the wires to the electric horn on the Ford car pass through the dash board two very fine silk covered copper wires are soldered and insulated in such a manner that the splice is entirely concealed inside the wood wash. The fine wires are lead along the dash, beneath the floor boards to the board beneath the seat. These wires are not tacked to the boards at any point, but glued with rubber cement and then painted with black paint and when in place are very inconspicuous. The two ends are connected with a novel switch arrangement, as shown in the illustration. The head of the screw sticks through the seat board about 1/16 inch. When the driver leaves the car he gives a turn on the screw, which makes the contact as shown at A. When the unsuspecting thief cranks the engine he is greeted by a prolonged blast from the horn, which will continue as long as the engine is running or until the screw is turned back so as to break the connection as shown at B.



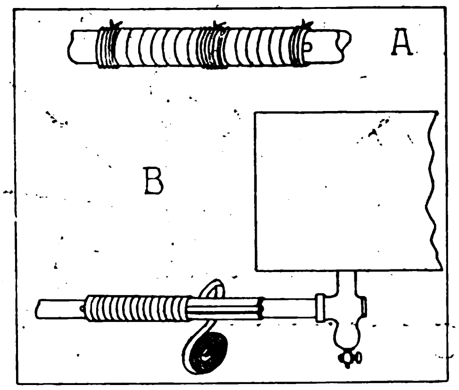
Switch Arrangement for Foiling the Thief.

BRASS POLISH.

A suitable polish for brass parts can be made of three ounces of powdered rotted stone, two ounces of pumice stone, four ounces of oxalic acid and two quarts of rain water. Mix thoroughly and allow to stand for several days, after which it is ready for use. Shake well before applying and polish with a dry woolen cloth or chamois skin.

GASOLINE PIPE REPAIR.

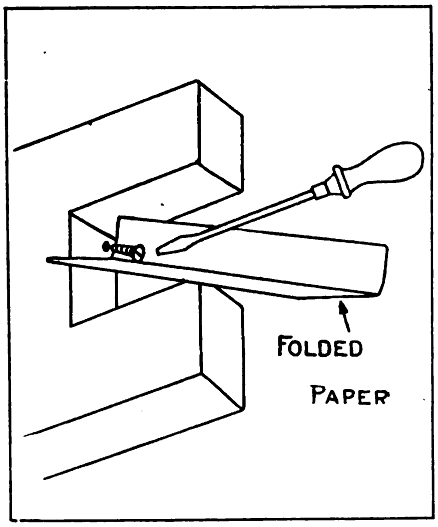
In a peculiar accident that recently happened to an automobile, the gasoline pipe leading from the storage tank to the carburetor was kinked and cracked. A repair man was summoned and after making repairs to the engine, fixed the gasoline pipe as illustrated. With a hacksaw the kinked section was cut out. Next he removed the rubber tubing from one of the front headlights and slipped it over the ends of the metal pipe. Because of vibration, chafing was apt to cut the rubber and so the pipe was placed in splints as shown. The splints were held in place by wrapping the pipe with tape and then reinforcing with twine. The repair proved very satisfactory.



An Emergency Repair of Gasoline Line That Proved Serviceable.

SMALL SCREWS.

We publish another suggestion of a unique and handy method for inserting small screws in inaccessible holes. The illustration is self-explanatory, a piece of folded paper or thin sheet tin may be used. The same method may be used for guilding cotter pins or valve pins into their place.



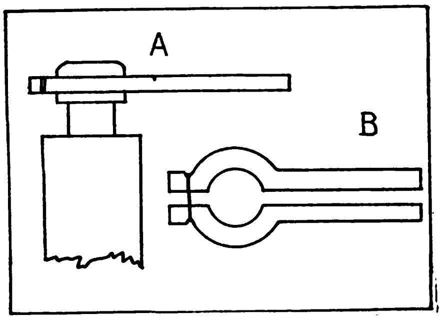
Suggestions of Method to Use in Replacing Small Screws.

ALUMINUM SOLDER.

An aluminum solder may be prepared from 50.03 parts zinc, 47.99 parts tin, 1.76 parts aluminum and .22 parts phosphorus. Add the phosphorus to the other materials in the following manner: Screw a cap on one end of a 12-inch length of one-inch gas piping. A tin plug may be utilized to close the other opening. Dry the phosphorus between blotting paper and expose to the air as little as possible. Remove the cap from the piping, insert the phosphorus and replace the cap. The tinned end of the pipe is next placed into molten tin, the heat of which will be sufficient to melt the plug and allow the phosphorus to mix without danger to the operator. Next add the required quantity of zinc and aluminum. The phosphorus serves as a flux and consequently no sal ammoniac or spirits are required when making a joint. An ordinary soldering copper can be used.

RADIATOR CAP REMOVER.

Owing to corrosive action of warm water and air, radiator caps frequently stick so hard as to make their removal very difficult without scratching the finish. Procure two pieces of hard wood about ¾ inch thick and cut them into the shape as illustrated at B. Make a loop of iron wire just large enough to slip over the short ends of the wood and into the slots. The device may be used on the brightest finish without leaving a mark. Sketch A shows the device as applied to remove a radiator cap.



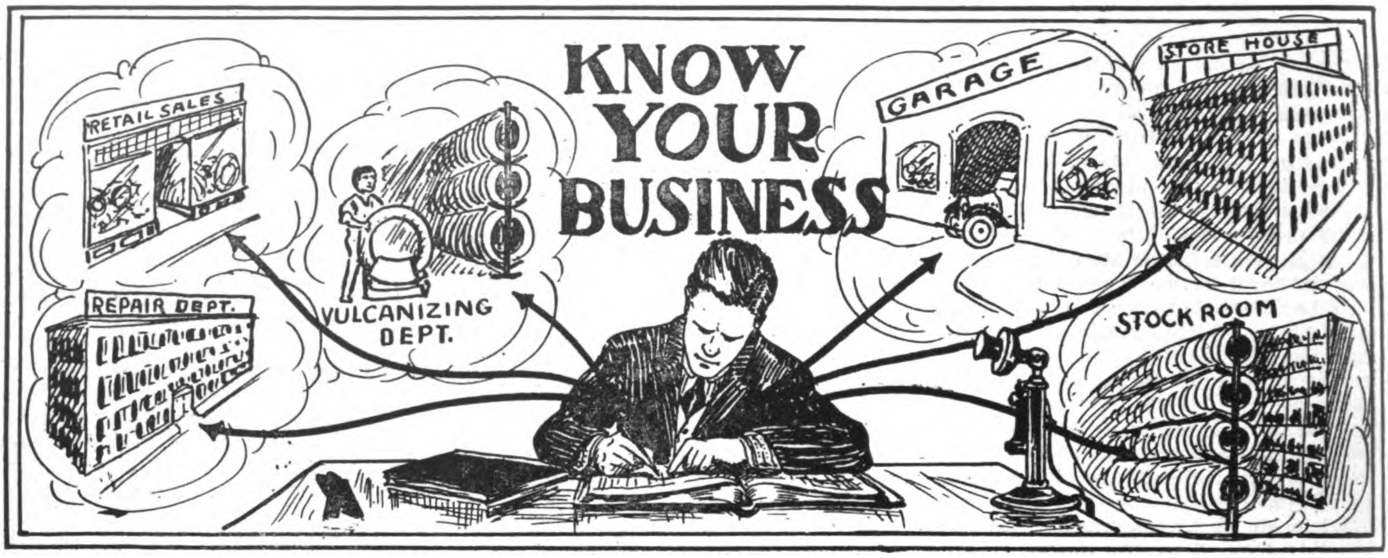
Radiator Cap Remover.

GRINDING ALUMINUM.

If an aluminum casting is ground on an ordinary emery wheel, the soft metal is apt to clog the abrasive material and impair its cutting efficiency. To avoid this condition, apply parraffine wax to the cutting surface of the wheel. This material will not effect its efficiency and can easily be removed when desired by appyling heat.

LEATHER AND IRON CEMENT.

To face a cast iron pulley with leather, apply acetic acid to the pulley with a brush. The action of the acid roughens the surface by rusting. When dry apply a cement composed of one pound fish glue and half pound common glue, melted in a mixture of alcohol and water. Place the leather on the pulley and dry under pressure.



UNCLE SAM'S ACCOUNTING SYSTEM FOR DEALERS

Federal Trade Commission Devises Method of Keeping Financial Records So As to Insure the Greatest Success Possible for Business Men

GREATER efficiency than ever is demanded by present conditions. The dealer who clings to old, hap-hazard methods is bound to be so far outstripped by his competitors that it will not be long before he will have to quit business. If he cannot adjust himself to modern practises he might just as well toss up the sponge now, as the future holds little promise for him.

An up-to-date system of accounts is now a necessity in all modern business. The man who continues to try to get along without an adequate plan for determining his costs is taking a short-cut to the bankruptcy court. Books must be kept, and they must be kept accurately. The better and more comprehensive the methods followed to this end, the greater the chance the dealer has for success.

The dealer who is lax in keeping a thoroughly modern accounting system is simply throwing a handicap to his competitor, for he is unable to price his goods intelligently and conduct his business upon sound principles. Even if a stroke of good luck should come his way his opportunity to take advantage of it would be narrowed through the fact that he would not have a correct statement of his financial condition to show to the banker of whom he might seek credit necessary for possible expansion.

Bankers Know Value of Accounting.

Bankers are paying strict attention to the accounting system used by business men who seek credit. They are willing to give larger loans and very often more liberal terms, to the man who keeps his books in such a manner that enables him to show the bank at any time just how his business is progressing. The man who can show progress is bound to receive more consideration with the same amount of assets than the one who cannot.

Whether the prospective borrower is making proper provisions for depreciation on stock, buildings and fixtures is something of great importance to the banker, and books should be arranged so that this information is immediately available.

The strenuous competition of these days compels a dealer to make close prices, and this is not possible with profit unless an accurate financial statement of costs is kept. Failure to keep such accounts properly may result in a dealer doing business at a loss, in the belief that he is making a profit.

Comprehensive Uniform System.

The Federal Trade Commission, desiring to save dealers from making the mistake of neglecting to keep their accounts properly, has, after a study of various systems, devised a system of accounts that is unusually simple and should appeal to the dealer. The aim has been to devise the least involved system which will give the information essential to successful management. A business man will find that the best system of accounts is one which furnishes the information required with the least effort.

The greatest value to be derived from an adequate system of accounts is that of making comparisons and analyzing differences. In order to maintain the simplicity of the system herein presented, no departmentalization of the accounts is provided for, but any concern operating distinct departments can readily adjust the system to show the results obtained in each department.

Must Know Overhead Costs.

In order to determine his costs a dealer must know his overhead expenses. With a proper arrangement of his accounts the percentage of overhead may be readily obtained. Business not done at prices high enough to cover this percentage is actually done at a loss.

The most convenient way of arriving at the proper percentage to add to the first cost of goods for overhead is to use the average ratio of operating expenses to net sales covering a past period. For instance, if a dealer's annual receipts for the last fiscal year were $25,000, and the expense of conducting his business was $5000, his overhead was 20 per cent. By adding the desired percentage of profit on sale to this overhead percentage, and deducting from 100 gives the percentage of invoice cost to selling price. The invoice cost of an article divided by this percentage gives the selling price.

Rapidity of Turnover Essential.

Rapidity of the turnover is a very important element in conducting a retail business. It is obvious that an increase in turnover goes hand in hand with an increase in profit. A slow turnover may be due to poorly selected stock, to overstocking, to an inefficient selling organization. No effort should be spared to increase the turnover to its maximum. To ascertain the turnover divide the cost of goods sold during the year by the cost of the average stock carried.

Only four books of account are required to operate the system of accounts here outlined. They are a journal, a general cash book, an invoice book and a ledger. Sale tickets and credit tickets are used for recording sales and sales returns. From these books certain statements, particularly a monthly summary of business, a profit and loss statement and a balance sheet, should be prepared at definite periods in order to present the results in comprehensive form.

Journal.

The ordinary two-column journal can be used. The opening entry is an inventory of the assets and liabilities. The totals of the charge sales as shown by the charge tickets should be entered in

MONTHLY SUMMARY OF BUSINESS, 19 (Form A.)

	Net Sales.			Buying Expense.		Selling Expense.			Delivery Expense.		General Expense.								
	Credit	Cash.	Total.	Salaries and Wages of Buying Force.	Miscellaneous Buying Expense.	Salaries and Wages of Sales Force.	Advertising.	Miscellaneous Selling Expense.	Salaries and Wages of Delivery Force.	Miscellaneous Delivery Expense.	Management and Office Salaries.	Office Supplies and Expense.	Insurance on Stock and Store Equipment.	Taxes on Stock and Store Equipment.	Losses from Bad Debts.	Miscellaneous General Expense.	Rent.	Total Expense.	Per Cent of Net Sales.
Jan	$3,356.31	$1,301.65	$4,657.96	$25.00	$14.00	$177.33	$30.00	$3.75	$102.67	$8.08	$269.00	$22.03	$1.61	$2.50	$33.56	$26.79	$71.25	$787.57	16.9
Feb.																			
Mar.																			
Apr																			
May.																			
June																			
July.																			
Aug.																			
Sept.																			
Oct.																			
Nov.																			
Dec.																			
Total,																			
Per Cent. of Net Sales																			

the journal, debiting accounts receivable and crediting sales. The totals of the credit tickets are also entered in the journal, debiting sales with returns and sales allowance with price concessions and crediting accounts receivable.

Transactions which do not go through either the cash book or invoice book should also be journalized. These entries comprise such items as notes receivable and payable, allowances or corrections of purchase invoices after entry in the invoice book, the various adjusting entries at the end of the month, and the closing entries at the end of the fiscal period.

Journal entries affecting trade customers' and trade creditors' accounts will also have to be posted, respectively, to accounts receivable account and accounts payable account.

General Cash Book.

This book is for recording all cash transactions. The left hand, or debit, side is for recording receipts, and columns should be headed as follows, in the order named: Date, name of account, description, ledger folio or LF, collections on accounts receivable, cash sales and general accounts. The right hand, or credit, side is for recording payments, and these columns should be headed: Date, name of account, description, check No., ledger folio or LF, discount on purchases, payments on accounts payable and general accounts.

The total cash receipts of each day should be deposited daily in bank and all payments should be made by check. The total of cash sales for the month should be checked against the total cash sales tickets, and is then posted to the credit of "Sales," that of the "Collections on "Accounts Receivable" to the credit of "Accounts Receivable Account," and that of "Payments on Accounts Payable" to the debit of "Accounts Payable Account." The total of the discount on purchases column is also posted to the debit of accounts payable.

All payments for expense items other than petty cash should be entered on the cash book as made and posted therefrom to the proper accounts. At the end of the month all expense bills for the month should be paid, so as to insure the expense being charged in the proper month.

Petty cash disbursements, such as car tickets, telegrams and such minor items for which it is not expedient to draw checks, should be handled as follows:

A check should be drawn for an amount sufficient to cover petty disbursements for a definite period. At the end of the period the cashier should prepare his petty cash statement, which should be supported by vouchers, and a check drawn for the exact amount of the statement, thereby restoring the petty cash fund to the original amount. This check should be entered in the cash book in the regular way, charging the various expense accounts as shown by the petty cash statement.

The balance of the general cash book at all times should check with the balance as shown by the check book plus the amount advanced for petty cash.

In the check book keep checks and deposits footed separately. When the bank book is balanced, check up the bank list, then rearrange the checks in numerical order, and check with the stubs. If any checks are outstanding, note them on the stub and deduct from total of checks drawn; the check book balance will then agree with the bank book balance.

Invoice Book.

This book contains the record of the invoices or purchases of merchandise only and should carry the following headings: Date of entry, date of invoice, number of invoice, from whom purchased, address, ledger folio or LF and amount of invoice.

The postings are made direct from this book into the purchase ledger and the total at the end of the month carried to the debit of merchandise purchases and to the credit of accounts payable.

Where the business is departmentalized a more elaborate form of invoice book should be used, giving departmental subdivisions of purchases.

Sales and Credit Tickets.

The use of sales and credit tickets for recording sales and sales returns has become almost universal.

A sales ticket must be made out for every sale and the daily total of these gives the sales for the day. The cash sales tickets are checked against the cash received and the charge tickets go to the bookkeeper. Credit tickets must be made out for credits to customers and these likewise go to the bookkeeper.

Ledger.

The accounts in the ledger should be arranged in the following order:

1. General accounts.
2. Accounts with trade creditors.
3. Accounts with trade debtors.

Allotting to each class such space in the ledger as may be necessary.

The general accounts should be arranged in logical order. (See arrangement of accounts.)

Accounts with trade creditors and with trade debtors should be arranged alphabetically, using preferably a loose leaf ledger.

NEW BUSINESS CONCERNS, GARAGES AND AGENCIES

The Month's Record of Garages, Agencies, Branches, Service Stations and Repair Shops

FACTORIES, GARAGES AND REPAIR SHOPS.

Montgomery, Ala.; L. C. Cardinal is erecting a garage 80 by 80 feet. It will cost $10,000.

Sacramento, Cal.; The Auto Tire Repair Co. will do tire repairing at 1325 K street.

Scotia, Cal.; W. H. McIntyre has opened for business in the Scotia Garage. He will do repair work and conduct a service station.

Anahein, Cal.; L. S. Irwin has opened a repair shop at 209 North Los Angeles street.

Pueblo, Col.; Tyler Tire and Accessory Co. has opened a tire store at 112 West Seventh street.

Wilmington, Del.; Joseph W. Bullen will erect four garages at 213-215 West 25th street at a cost of $1000.

Gridley, Ill.; Ralph Flesher has purchased a garage.

Springfield, Ill.; The W. D. Booth Auto Co. has opened a new garage at 219-223 East Monroe street and will be distributor for the Hupmobile in the Sangamon county territory.

Springfield, Ill.; Henry Brown will erect a garage in the rear of 1145 West Lawrence avenue to cost $275.

Springfield, Ill.; J. R. Phillips is to erect a garage in the rear of 1145 South Seventh street to cost $495.

Elwood, Ind.; Charles Morehead has opened a garage in the Kurbis building.

Petsotum, Ind ; James O'Neil has purchased a building and will start a garage and vulcanizing plant.

Atlantic, Ia.; Edward Southwick will open an automobile repair shop east of the Savings Bank. It will be known as the Electrical Equipment Co.

Iowa City, Ia.; Breece & Smith will do automobile repair and have secured quarters in the basement of the old Beckman Garage, 120 South Gilbert street.

Douglas, Kan.; C. S. Bailey is building a garage.

Junction City, Kan.; H. A. Burns has opened a new garage and will do business under the style of Merchants Garage Co.

Dodge City, Kan.; C. M. Jenkins has opened a new machine shop in the building of the Dodge City Auto Top and Painting Co.

La Cygne, Kan.; S. S. Mouse will erect an automobile show room and garage. The building will be 50 by 90 feet and will be fireproof.

Leavenworth, Kan.; John Ludwig has opened a tire repair shop at 327 Cherokee street.

Manhattan, Kan.; Phil Longfielder has opened a garage and it will be operated by the Auto Mechanic Co.

Paola. Kan.; G. E. Trout has opened a repair shop.

Quenemo, Kan.; Davidson White Motor Co. will erect a garage.

Brockton, Mass.; Wood & Baldwin have opened a new garage at 560 Warren avenue. They will specialize in storage, repairs and accessories.

Marblehead, Mass.; Peter Larson has leased the White Garage and will conduct it.

North Adams, Mass.; J. Ward Graves is contemplating the erection of a repair shop.

Webster, Mass.; H. A. Covey has leased the Roemer Garage and will start in business for himself.

Worcester, Mass.; Wright Wire Co. is erecting a garage at a cost of $1000.

Charlotte, Mich.; Kauffman & Rector have opened the Lamont Garage on East Lovette street.

Baltimore, Md.; The Alexander Milburn Co. will erect two one-story garages at 1420-22 West Baltimore street. Each garage will be 20 by 20 feet and will be of brick construction.

Morton, Minn.; City Garage is erecting a new garage.

Thief River Falls, Minn.; E. P. Burstad and Iver E. Aaseby has purchased the Tessum building at the corner of Horace avenue and Third street and will open a fully equipped garage.

Tyler, Minn.; Lewis Lange's Garage will be soon opened for business.

Altamont, Mo.; George G. Tedrick will open a supply shop.

Fayette, Mo.; R. E. Ripley has opened a repair shop.

Kansas City, Mo.; C. A. Hann and C. B. Hein have opened a general repair shop at 1001 Oak street. They will do business under the name of the Atlas Auto Repair Co.

Hartsville, Mo.; Rippee Brothers is erecting a garage.

Kansas City, Mo.; Mowatt Cox has opened a magneto repair shop at 1603 Grand avenue.

Woodland, Mich.; Oscar Redin will open a garage and implement business.

New York, N. Y.; Hencken Realty Co., 415-23 West 16th street, is erecting a garage 92 by 125 feet. It will cost $10,000.

Charlotte, N. C.; Blake's Auto Service, 14 South Church street, is building a new garage.

Morganton, N. C.; Burke Garage is erecting a new building and will have all the necessary facilities when completed.

Zebulon, N. C.; Williford & Bullard has opened a new garage.

McHenry, N. D.; King-Burns Auto Co.'s new garage is near completion.

Paris, Okla.; W. B. Wise is erecting a garage at the corner of Main and Houston streets. The garage will cost about $25,000.

Drumright, Okla.;. Claude M. Enos and Ralph E. Nugent will open a repair shop.

Sallisaw, Okla.; Sam Laney will erect a garage.

Pittsburgh, Pa.; J. A. Long has completed plans for a $25,000 commercial garage to be built in Highland avenue for the De Long Motor Truck Co.

Providence, R. I.; Bourn Rubber Co. will erect a one-story brick store house, 60 by 90 feet, on Warren street.

Rock Hill, S. C.; The City Motor Co. will erect a garage at a cost of $10,000. It will be two stories high.

Mitchell, S D.; W. H. Sibey will open a new fireproof garage in the Jebsen building where he will do a general garage business, including storage.

Prescott, Wash.; H. S. Fender & Son have enlarged their garage.

Everett, Wash.; B. & W. Auto Co. have opened a repair shop at 2805 Westmore avenue.

Spokane, Wash.; E. A. Williams has opened a garage and sales room at 807 First avenue. The structure is two stories.

Walla Walla, Wash.; F. H. Berry has purchased the Shadduck Garage on South Palouse street.

Walla Walla, Wash.; B. D. Kincheloe has opened a repair shop under the name of Dan's Garage.

Walla Walla, Wash.; Wood & Lane have erected a new building 100 by 164 feet.

Barton, Wis.; Stephen May of Hartford will open a garage.

Mineral Point, Wis.; Theron Beers and John Collins have opened a garage.

AGENCIES, DEALERS AND SERVICE STATIONS.

Little Rock, Ark.; The Bush Johnson Auto Co. is now distributor for the Briscoe and Elgin cars in Central Arkansas.

Hemet, Cal.; Maddox Garage has taken the agencies for the Republic and Federal motor trucks. It already has the agency for Ford truck, car and tractor.

Oakland, Cal.; L. H. Rose-Chalmers has opened a used car branch at 2829 Broadway. J. T. Abbott is in charge.

San Francisco, Cal.; The Peacock Motor Sales Co. has been appointed distributor for the Bethlehem truck.

Ventura, Cal.; Savard & Harman, 707 Main street, has taken the Willard storage battery agency.

Pueblo, Col.; A. S. Porter and J. S. Thatcher have opened a vulcanizing shop at 310 Santa Fe street and will do business under the name of the Elite Tire Shop.

Brayton, Ia.; G. Christensen has sold his garage business to N. B. Nelson.

Indianapolis, Ind.; U. S. Truck Sales Co. of Indiana has opened at 419 North Capitol avenue. A. T. Griffith is general manager.

Great Bend, Kan.; The Great Bend Auto Painting and Trimming Co. has been opened by Horton & Rairdon at 2015 Twelfth street.

Hutchinson, Kan.; The R. & L. electric automobile will be handled by the Reno-Buick Co.

Salina, Kan.; The Vesta Battery Service has been opened for business by Harry B. Flynn and Walter E. Loomis.

Sterling, Kan.; The Hodge Motor Co. has taken the agency for the Columbia Six for Rice, Darton and Stafford counties.

Topeka, Kan.; Duncan Tire and Rubber Co. has opened a vulcanizing shop at 118 East Eighth street.

Topeka, Kan.; Ralston Motors Co. have opened a sales room at 117 East Sixth street and will distribute the Oldsmobile, Holmes and Pan cars.

Toronto, Kan.; H. M. Hosey has opened a new automobile sales room.

Boston, Mass.; C. S. Ramson has taken the agency for the Fulton truck.

Greenfield, Mass.; The Greenfield Buick Co. has installed a new office at its sales rooms on Miles street. The company handles the Buick cars and G. M. C. trucks and has also added the Chevrolet to its line.

Lansing, Mich.; The Willard Storage Battery Service Station has opened its new service station at 118-119 West Washtenaw avenue.

Pontiac, Mich.; George M. Blakeslee has opened an automobile accessory store at South Saginaw and Railroad streets. The building has been remodeled.

Altamont, Mo.; George G. Tedrick will open a supply shop.

Kansas City, Mo.; The Dort Sales Co has opened a branch in Oklahoma City. Charles McDaniel, vice president of the company, will have charge of the branch. It will belocated at 1704 Grand avenue.

Kansas City, Mo.; Fred Meyn, 2305-2307 Grand avenue, has secured the agency for the Kelly-Springfield tire.

Newark, N. J.; L. Schoonmaker has leased the store and service station, 40 by 120 feet, at 230 Central avenue, and will use it for the sale and service of Globe tires.

New York, N. Y.; Broadway Motor Truck Co. has taken a lease on the entire building at 544-546 West 38th street for a term of years.

Grand Forks, N. D.; J. E. Sandlie, Inc., is a new automobile concern and has opened for business.

Cincinnati, O.; Renner & Meyer have leased the former bowling alley at 1306-08 Vine street and will convert this as an additional store room into an automobile accessory place. They are automoble repairers.

Tulsa, Okla.; The Times Square Auto Supply Co. has opened at 213 Second street.

Oklahoma City, Okla.; Smith-Paris Motor Co. has secured the agency for the Packard truck.

Dallas, Ore.; Paul Hunter of the Dallas Garage has added a special tractor service department.

Dallas, Ore.; C. J. Shreeve has taken the agency for the Happy Farmer tractor.

Forest Grove, Ore.; The Wiles Auto Co., Chevrolet distributor, has taken the agency for the Bethlehem trucks and the La Crosse tractors.

Hubbard, Ore.; J. J. Hershberger will distribute the Moline in northern Marion county.

Pendleton, Ore ; Kenneth Chapman has secured the agency for the Sandusky tractor.

Pendleton, Ore.; The Pendleton Motor Sales Co. will handle Nash trucks.

Portland, Ore.; The Willys-Overland Co. has taken on the distribution of the Moline tractor in 12 counties.

Columbia, S. C.; Barrow Motor and Truck Co. has secured the agency for Winther motor trucks.

El Paso, Tex.; The American Auto Supply Co. is installing an additional Dri-Kure retreading outfit and is preparing to enlarge its plant.

Colfax, Wash.; The Colfax Battery Station has opened on North Main street and has taken the agency for the Willard battery service.

Colfax, Wash.; Root & Dahl have opened a vulcanizing shop and will represent the Gates Half Sole.

La Crosse, Wash.; J. F. Jackson has added sales rooms to his garage for the sale of Chevrolet cars.

Seattle, Wash.; Henry Mossback has secured the agency for United States trucks.

Seattle, Wash.; The Whiteside Tire and Rubber Co. will distribute Mason tires, with sales rooms at 1215 Fourth avenue. Maurice Klein is president.

Spokane, Wash.; R. C. Dahlhjelm has opened at W. 1124 Sprague avenue and has taken on the agency for the Stanley steamer.

Spokane, Wash.; The Inland Battery Co. has erected a new Willard sales and service building at 1215 Riverside avenue. It is 50 by 125.

Spokane, Wash.; Larson Brothers, Inc., 1227 W. Sprague street, has secured the agencies for the F. W. D. truck and Trundaar tractor.

Spokane, Wash.; E. B. Snyder has opened sales rooms at 1024 First avenue for Atterbury and Stewart trucks and Cleveland tractors.

Spokane, Wash.; The Stewart Product Service Station has opened for business at 1131 West First avenue.

Tacoma, Wash.; The West Coast Motor Co. has become distributor for Perfection asbestos tires.

Walla Walla, Wash.; Beckwith Motor Co. will handle the Republic truck.

Walla Walla, Wash.; Lee Joynes has taken the agencies for Duplex and Fageol trucks.

Walla Walla, Wash.; Mayfield Brothers have established Velie sales rooms and Bosch magneto service station.

Walla Walla, Wash ; The J. W. Rogers Motor Co. has added the Packard truck to its line.

Walla Walla, Wash.; Wood & Lane have added sales departments for the G. M. C. truck and Samson tractor.

Charleston, W. Va.; Motor Sales Co. are distributors for Denby trucks.

NEW CONCERNS RECENTLY INCORPORATED

Monthly Record of New Business Houses for which Charters Have Been Issued in the Various States and Classified According To Nature of Business.

NEWLY ORGANIZED MANUFACTURERS OF CARS, TRUCKS AND TRACTORS.

Dover, Del.; American Standard Motor Co.; $2,000,000; to manufacture automobile and motor trucks; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Dover, Del.; The Illinois Form-a-Truck Co.; $225,000; F. R. Hansell, E. M. MacFarland, J. Vernon Pimm.

Dover, Del.; Dearborn Truck Co.; $5,500,000; to manufacture motor trucks, automobiles; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Wilmington, Del.; International Auto Tractor Corporation; $1,000,000; to manufacture, sell and deal in and with motors, automobiles, trucks, tractors and motor boats; M. L. Horty, J. D. Frock, M. E. Denver.

Medina, N. Y.; Medina-Heke Tractor Co., Inc.; $80,000; to manufacture agricultural machinery; T. H. Agnew, J. C. Posson, O. C. Munson.

Troy, N. Y.; The Duplex Tractor Co.; $750,000; H. R. Mosler, W. Pratt, L. A. Robinson.

Mandan, N. D ; The Farmer Motor Sales Co.; $50,000; Mathias Grewer, Michael Tichida, William Maas, F. W. Mees.

Sioux Falls, S. D.; Thompson-Braley Motor Co.; $300,000; C. W. Thompson, George A. Braley, P. P. Thompson.

PARTS AND FITTINGS MAKERS.

Dover, Del.; American Stemme Corporation; $1,000,000; to manufacture machinery of all kinds; C. J. Levey, Alice Haurle, Lillian Funk.

Dover, Del.; Litscher Lite Corporation; $1,500,000; to deal in electrical equipment, apparatus and accessories of all kinds; William Drueke, W. R. Patton, Charles J. Kindel, C. J. Litscher, C. E. Tarte, Adolph Brand.

Chicago, Ill.; Cushman Motor Delivery Co.; $40,000; John T. Fitzgerald, Joseph D. Daly, James J. Kelly.

Chicago, Ill.; Liberty Battery Co.; $2500; Mrs. Ella S. Wolff, Benjamin E. Wolff, Patrick F. Gribbon.

Chicago, Ill.; Roy Top Co.; $15,000; to deal in automobile tops, seat covers, glass side enclosures, curtain attachments and general repairs; Roy E. Gripe, William Ganschow, Robert E. Gentzel.

South Bend, Ind.; Colfax Co.; $10,000; to manufacture automobile bodies and accessories; Charles A. Lancaster, Benjamin S. Walter, John G. Yeagley.

Springfield, Mass.; P. W. V. Automatic Machine Corporation; $575,000; to manufacture machinery and merchandise of all kinds; Frank H. Page, Clarence J. Wetsel, Charles E. Van Norman, Lyman M. Waite.

Detroit, Mich.; Liberty Machine Corporation; $100,000; J. William Barnes, Cliff R. Cook, Norman P. Fraser.

Carthage, Mo.; The Automobile Battery and Electric Service Co.; $24,000; W. C. Randall, E. P. Beine, F. D. Newton.

Jersey City, N. J.; Conduit Wiring Co.; $5000; to operate as electrical contractors; M. Levin, M. Fenton, William Kohler.

Jersey City, N. J.; Streichert Radiator Co.; $100,000; to manufacture automobile and tractor radiators.

Buffalo, N. Y.; Sentinal Motor Corporation; $50,000; to manufacture motors, engines, machines and other machinery; H. E. Witner, F. C. Bonnet, H. R. Stratemeter.

Medina, N. Y.; Medina-Hole Tractor Co.; $80,000; to deal in agricultural machinery; D. C. Mumson, J. C. Posson, T. H. Agnew.

New York, N. Y.; The Anti-Theft Padlock Auto Co., Inc.; $150,000; Herman Roth, Leon Adler, Frederick C. Eckleman.

New York, N. Y.; Selson Engineering Co.; $5000; to deal in machinery and electrical equipment; O. Ruprechet, F. W. Wearin, G. Kohn.

New York, N. Y.; Pullman Metal Specialty Co.; $25,000; to deal in metal novelties and automobile parts; V. Backer, A. Backer, M. Zeisler.

New York, N. Y.; Republic Auto Parts Co.; $50,000; R. W. Russell, S. Brand, F. Kastenbaum.

Grand Forks, N. D.; The Stewart Manufacturing Co.; $100,000; to manufacture radiators; E. J. Stewart, F. G. Rodnack, J. J. McGuire.

Dayton, O.; The Automotive Manufacturing Co.; $10,000; to sell automobile parts and accessories; George W. Mearick, Harry C. Moore, Nelson W. Mearick, Eugene F. Moore, George W. Funkhouser.

Milwaukee, Wis ; Gerlinger Electric Steel Foundry Co.; $99,000; George P. Gerlinger, William E. Gerlinger, Walter Gerlinger, Charles A. Gerlinger.

GARAGE AND REPAIR SHOPS.

Huntington, Conn.; City Garage Co.; $8500; Robert Scholley, James E. Fair, Daniel E. Brinsmade, L. W. Holmes, James Carney, Leyon Sylvester.

Dover, Del.; Rineck Garage Co.; $10,000; to operate a garage; F. R. Hansell, E. M. MacFarland, J. Vernon Pimm.

Newnah, Ga.; H. C. Glover Automobile and Machinery Co.; $15,000; to operate a garage and buy and sell automobiles, trucks and tractors; H. C. Glover, O. F. Nixon, C. H. Hamrick.

Davenport, Ia.; Kelly Brothers; $10,000; to conduct a garage and repair shop; John C. Kelly, Leo J. Kelly.

Boston, Mass.; Warren Avenue Garage Co.; $25,000; L. Benson Gowan, Harry L. Littlefield, L. H. Fairbanks.

Portland, Me.; Swan's Garage, Inc.; $50,000; to conduct a garage and automobile business.

Axtell, Neb.; The Farmers' Union Co-Operative Implement Co.; $50,000.

Brooklyn, N. Y.; L. L. B. Circle Garage; $12,000; to conduct a garage business; S. Browner, P. Lerner, E. Lerner.

Brooklyn, N. Y.; White Auto Repairing Co.; $6000; C. Kente, J. Halvax, R. S. Dubois.

New York, N. Y.; Ramapo Garage; $5000; A. Sapadin, S. Sapadin, M. Posoff.

New York, N. Y.; Simson Garage Corporation; $5000; L. Schliefer, J. Gurnalick, A. Simson.

New York, N. Y.; West 44th Street Garage Co.; H. G. Lantz, R. Roher, E. F. Becker.

New York, N. Y.; Zerwill Garage, Inc.; $36,000; P. F. Hagen, J. W. Naughton, E. A. Sidman.

Syracuse, N. Y.; The Fancher Flexible Shaft Corporation; $25,000; to deal in engines, boilers and machines; M. G. Melvin, S. J. Pearlman, C. Cooper.

Syracuse, N. Y.; Syracuse Garage; $50,000; W. A. Schuyler, A. J. and E. E. Roberts.

Lima, O.; City Taxi and Garage Co.; $10,000; H. L. Myers.

Youngstown, O.; The Quality Tire and Repair Co.; $10,000; William James, K. C. James.

Ardmore, Okla.; Victory Garage; $10,000; A. D. Bailey, Ben Stephens, S. N. Dillard.

Philadelphia, Pa.; Hill & MacMillan, Inc.; $100,000; to operate automobile garages and repair shops; Thomas J. Hill, C. D. MacMillan, J. R. Smith.

Pittsburgh, Pa.; Motor Truck Repair Co.; $5000; F. E. Yeager.

Madison, Wis.; Benson-Wischan Co.; $25,000; to conduct a garage and automobile sales business; Julius A. Benson, Adolph Wischam, Lyman G. Wheeler.

ACCESSORIES, EQUIPMENT, SUPPLIES.

Los Angeles, Cal.; The Morris Tire Machinery Co.; $57,600; E. H. Forman, E. Wengler, H. McLaughlin.

Dover, Del.; American-Canadian Manufacturing Co.; $75,000; to manufacture freezing liquid coating; S. H. Bayard, A. M. Fox, S. S. Baker.

Dover, Del.; Ecomotive Co.; $100,000; to deal in automobile tires and air pressure gauges; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Dover, Del.; Midwest Development Syndicate, Inc.; $100,000; to prospect for petroleum, carbon and other oils and to market same; A. W. Britton, Samuel B. Howard, L. H. Gunther.

Dover, Del.; Ranger Gulf Corporation; $1,250,000; to manufacture and produce oils and natural gas; M. L. Rogers, L. A. Irwin, W. G. Singer.

Dover, Del.; Standex Manufacturing Co.; $200,000; to deal in lubricants and oils; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Carlinville, Ill.; The Carlinville Motor and Implement Co.; $15,000; H. E. Borman, Frank C. Vorman, Alex M. Crawford.

Peoria, Ill.; T. J. Kelly Co.; $25,000; to conduct a general automobile accessory business and garage; Thomas J. Kelly, Edwin O. Lehmann, Harry Mansfield.

Indianapolis, Ind.; A. & M. Auto and Vulcanizing Co.; $5000; to buy and sell automobiles and accessories.

Covington, Ky.; Cincinnati Tire Co.; $5000; Fred L. Richards, Maud F. Richards, Edwin C. Edgell.

New York, N. Y.; Universal Rubber Products Co.; $250.000; to manufacture tires, rubber products and substances including iron and steel; S. B. Howser, P. S. Smith, P. L. Nieser.

Belleville, N. J.; O. Vorman Cushion Tire Co.; $150,000; Mac Overman, Edward Nelson, Peter Swanson.

Jersey City, N. J.; Victory Tire and Rubber Co.; $300,000; A. W. Britton, C. V. Reilly, L. H. Gunther.

Newark, N. J.; Standard Non-Skid Chain Co.; $25,000; William F. Wurster, V. A. Wurster, Frank J. Chaub.

Aberdeen, S. D.; Kelly Springfield Tire Sales Co.; $5000; E. N. Mumpher, N. H. Bountz, N. B. Hicks.

Sioux Falls, S. D.; Universal Supply Co.; $25,000; Fred L. Johnson, R. E. Dickinson, H. L. Anderson.

Norfolk, Va.; Tidewater Tire and Electric Corporation; $25,000; to manufacture and deal in automobiles and tires; Seomes Chapman, H. J. W. Greene.

Milwaukee, Wis.; Cook & Bloedel Tire Co.; $30,000; Theodore B. Cook, Elsa Bloedel, R. E. Bloedel.

Milwaukee, Wis.; General Manufacturing Corporation; $100,000; to manufacture automobile accessories; Michael Levin, Joseph Kopop, Josephne P. Shea.

Milwaukee, Wis.; North Star Rubber Works; $25,000; Leo Hofmeister, M. Hofmeister, M. Waechter.

Milwaukee, Wis.; Ten Broeck Tire Sales Co.; $5000; to deal in motor vehicle supplies and accessories; F. R. Beck, W. Z. Nedden, N. G. Beck.

Racine, Wis.; Saturn Spring Tire Manufacturing Co.; $10.000; Martin C. Weiss, Louis Branson, Martin Rasmussen.

DEALERS IN AUTOMOBILES AND MOTOR TRUCKS.

Bridgeport, Conn.; L. J. Carroll Motors Co.; $50,000; to conduct a general automobile and motor vehicle business; Katheryne I. Carroll, Leo J. Carroll, Henry E. Shannon.

Waterbury, Conn.; The P. B. Co.; $50,000; to conduct an automobile business.

Waterbury, Conn.; The P. B. Company; $50,000; to conduct an automobile business.

Dover, Del.; Braddon Motor Co.; $200,000; F. J. Clarke, S. M. Fogle, George J. Fogle.

Dover, Del.; J. B. Crockett Co.; $3,000,000; to export automobiles; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Dover, Del.; Gearless Motor Car Co.; $50,000; D. MacDonald, E. M. MacDonald, Victor Schrobaz.

Wilmington, Del.; E. I. Du Pont de Nemours Export Co.; $100,000; W. S. Gagan, C. R. Mudge, A. M. Gorman.

Jacksonville, Fla.; Royal Blue Line Co. of Florida; $50,000; to deal in automobiles and to manage automobile tours; William F. Smith, Charles C. Paine, Charles F. Smith.

Macon, Ga.; Macon Chalmers Co.; $7500; to operate a general automobile, garage and machinery business; M. N. Criswell, H. F. Young.

Carlinville, Ill.; The Carlinville Motor and Implement Co.; $15,000; to do a general motor, implement sales, repair and garage business; R. W. Borman, Frank C. Borman, Alexander M. Crawford.

Indianapolis, Ind.; Circle 3000 Tire Co.; $30,000; to buy and sell automobiles and accessories; Harry J. Wangelin, Harry S. Sharp, Milton A. Edwards, J. L. Murden.

Hutchinson, Kan.; H. A. Maple Auto Co.; $15,000.

Boston, Mass.; Boston Oldsmobile Co.; $157,500; to deal in automobiles; George W. Bradburn, Charles R. Dunbar, Frank B. Carter, Harry C. Dunn.

Boston, Mass.; George R. Cousins Co.; $200,000; to deal in automobiles; George B. Cousins, Francis L. Daly, Constance H. Billings.

Boston, Mass.; Hall Motor Co.; $25,000; to deal in automobiles; Sherwood Hall, Jr., Wheaton Kittredge, William L. F. Gillman.

Boston, Mass.; George B. Cousins Co.; $200,000; to deal in automobiles of all kinds; Geo. B. Cousins, Constance H. Billings, F. L. Daly.

Haverhill, Mass.; Stewart Truck Sales Co.; $50,000; George P. Dennett, William H. Wood, Leslie J. Wood.

Dubuque, Ia.; The Dubuque Motor Express Co.; $50,000; C. H. Flanders, F. O. Jacobsen.

Detroit, Mich.; Blackstone Auto Sales Co.; $5000; Thomas H. Collins, Devana Collins, Bert Baker.

Lansing, Mich.; Detroit Motor Products Sales Co.; Emil G. Handloser, Joseph C. Reimann, George W. Handloser.

Montgomery City, Mo.; The Union Hardware Co.; $10,000.

Atlantic City, N. J.; Aero Transport Co.; $200,000; Edward K. Jaquith, Charles N. Oppenheimer, Robert Hutchinson, Jr.

Jersey City, N. J.; The Universal Motor Bus and the Jersey City Bus Co.; $90,000; Alfred F. McCabe, H. A. Black, John R. Turner.

Newark, N. J.; Schaffer Auto Trucking Co.; $50,000; to conduct a trucking and storage business; Charles Wenzel, Anthony Schaeffer, Ida Schaeffer.

Trenton, N. J.; Lange Auto Co.; $50,000; F. G. Barton, Francis Lange, C. H. W. Lubs.

Albany, N. Y.; Leonard Capitol Auto Service, Inc.; $10,000; E. Panzanaro, A. Leonard.

Albany, N. Y.; Nathan Marks Co.; $5000; to conduct a general motor vehicle business; W. Arnstein, A. Marx, N. Marx.

Brooklyn, N. Y.; Borough Taxi Co.; $5000; L. Londgren, M. Londgren, J. A. Litt.

Brooklyn, N. Y.; J. Koslin, Inc.; $5000; F. G. M. Depaola, E. M. Jarvis, J. Koslin.

Brooklyn, N. Y.; Feinberg Motor Car Exchange; $10,000; to deal in used cars; H. Rifkin, D. Feinberg, I. Feinberg.

Brooklyn, N. Y.; Charles J. Gillem Co., Inc.; $200,000; to conduct a general cab, carriage, trucking and auto, hacking and garage business; C. J. Hillen, E. L. Durling, J. H. Paige.

Brooklyn, N. Y.; A. & J. Trucking Co.; $5000; I. J. Ginsberg, A. Silberman, M. Weinberg.

New York, N. Y.; Auto Owners' and Chauffeurs' Association, Inc.; for the betterment of social business and intellectual intercourse and for the further purpose of safeguarding the life and limb of pedestrians of the city and the State of New York; Harry Rubinstein, Carni Voisic, Abraham Silverman, Joseph Gordon, Nathan Smith.

Binghamton, N. Y.; Emco Manufacturing Co.; $100,000; to deal in automobiles, motors and accessories; S. W. Botnick, E. T. Archeses, T. J. Mangan.

Callicoon, N. Y.; Sullivan Electric Co.; $10,000; M. Hermann, F. M. Strack, L. G. Gerhardt.

New York, N. Y.; A. Z. Boyd Co.; $25,000; to deal in hardware, tools and machinery; W. A. Van Ness, A. Z. Boyd, J. C. Boyd.

New York, N. Y.; Clark & McKenna, Inc.; $10,000; to deal in automobiles and to conduct a garage; B. Rabinowitz, A. L. Rabinowitz, M. Feinstein.

New York, N. Y.; The Electric Brazing and Welding Machine Co.; $5000; A. M. Sheard, J. M. Vincent, E. M. Simon.

Brooklyn, N. Y.; Charles J. Gillem Co.; $200,000; to conduct a cab, trucking and automobile business; C. J. Gillem, E. L. Durling, J. H. Paige.

New York, N. Y.; Featherstone Trucking Co.; $5000; H. J. Featherstone, G. H. Wing, C. C. Clifton.

New York, N. Y.; Kemah Warehouse and Trucking Co.; $10,000; E. P. Cronkhite, W. G. Broadway, R. L. Cutter.

Albany, N. Y.; Leonard Capitol Auto Service, Co.; $10,000; E. Panzanaro, A. Leonard.

New York, N. Y.; Manhattan Stevedoring Co.; $10,000; J. H. Scherman, L. E. Conkling, L .H. Cohen.

New York, N. Y.; L. W. Mulford Co., Inc.; $50,000; to deal in automobiles and auto trucks; L. W. Mulford, M. Hertz, H. M. Hessberg.

New York, N. Y.; Victor Water Motor Corporation; $25,000; A. F. Andrews, A. Prager, V. Prager.

Canton, O.; Fuhr-Shaffer Motor Car Co.; $10,000; F. L. Fuhr, H. T. Shaeffer, C. C. Jones, Fred Clark, C. H. Irwin.

Cleveland, O.; Automotive Exchange of America Co.; $5000; Don P. Mills, W. R. Godfrey, S. R. Klein, D. E. Commery, S. F. Krohn.

Cleveland, O.; James Holan Manufacturing Co.; $75,000; to deal in automobiles; John P. Kalina, James Holan, Joseph C. Kovar, Netta A. Babinee, Francis Harris.

Cleveland, O.; The Ralph-Mishne Motor Sales Co.; $25,000; N. C. Ralph, J. S. Mishne.

Toledo, O.; The Culver Motor Sales Co.; Mrs. E. E. Culver, Thomas Farrell, Walter Culver, John Ashbrook.

Clinton, Okla.; The B. P. M. Motor Co.; $15,000; E. M. Boring, T. J. Massey, W. F. Cabiness.

Oklahoma City, Okla.; The American Auto and Truck Cl.; $25,000; J. H. Marshall, W. C. Ayres, J. R. Reno.

Lancaster, Pa.; Mack Body Co.; $15,000; to deal in automobiles; I. N. Dramer.

Pittsburgh, Pa.; The Coon-McGraw Sales Co., Inc.; $10,000; to deal in automobiles; J. H. McGraw.

Columbia, S. C.; The Interstate Motor Co.; $10,000; J. W. Wilkinson, S. J. Zimmerman.

Greenville, S. C.; Greeneville Garage and Welding Co.; $4000; to conduct an automobile business and do repair work.

Greenville, S. C.; The Simon-Scales Auto Co.; $25,000; H. P. Scales, H. H. Simon.

Spartanburg, S. C; Nesbitt-Spartanburg Co.; $30,000; to conduct a general automobile truck and tractor business; R. H. Nes.

Pierre, S. D.; Lake Andes Motor and Securities Co.; $10,000; Charles T. Kyte, George H. Patrick, Knuce K. Lundeland.

El Paso, Tex.; Herman Transfer and Storage Co.; $2500; S. A. Soulhas, Baron Harryke.

San Antonio, Tex.; San Antonio Trade Association; T. A. Tirado, L. D. Ormsby, H. L. Miller.

Tacoma, Wash.; The Batschi-Bennett Auto Co.; $10,000; John Batschi, Ida Batschi, A. M. Bennett.

Tacoma, Wash.; Rainier Taxi Co.; $200,000; W. A. Miller, Paul Henslin, A. O. Burmeister, E. D. Judson.

RECORD OF BUILDING OPERATIONS FOR JANUARY

Contracts Made and Plans Contemplated for Alterations or Erection of Garages, Repair Shops, Service Stations and New Plants.

CONTEMPLATED PLANS AND SPECIFICATIONS.

Stamford, Conn.; Edward C. Hoyt, 17 Battery Place, New York; 1½-story private garage, 35x50.

Waterbury, Conn.; Leibreich Brothers; one-story garage, 19x22; $1200.

Wilmington, Del.; E. C. May, Du Pont building; one-story private garage, 20x30; $2000.

Chicago, Ill.; Columbia Ice Cream Co., 1028 S. Kedzie avenue; one-story garage, 25x40; $1500.

Mt. Vernon, Ill.; Standard Oil Co., Whiting, Ind.; one-story filling station; $15,000.

Dubuque, Ia.; Standard Oil Co., 900 S. Michigan avenue, Chicago, Ill.; two-story garage, machine and paint shop; $50,000.

Mt. Pleasant, Ia.; Standard Oil Co., Davenport, Ia.; one-story filling station, 18x20; $4000.

Louisville, Ky.; Consolidated Realty Co.; one-story garage and factory; $10,000.

Fall River, Mass.; Ernest Place, 34 Sixth street; one-story public garage, 51x77.

Pipestone, Minn.; C. G. Munce; one-story filling station, 20x28; $2000.

Avon, N. J.; Standard Oil Co., 26 Broadway, New York; one-story garage, 46x63.

Jersey City, N. J.; H. and R. Shannon Co., 638 Bergen avenue; one-story public garage, 30x105; $1500.

Newark, N. J.; Luigi Falcono, 149 Oliver street; one-story garage, 30x30; $2500.

Newark, N. J.; Patrick Feelon, 121 Tyler street; one-story public garage, 32x99; $6000.

Newark, N. J.; Ralph Bloom, 451 Orange street; one-story garage, 27x36; $3000.

New Durham, N. J.; Standard Oil Co., 26 Broadway, New York; one-story garage, 46x85.

Trenton, N. J.; M. M. Wolf & Sons; one-story garage and warehouse; $12,000.

Brooklyn, N. Y.; Michel Del Terza, 127 Stone avenue; one-story garage, 17x48; $1000.

Brooklyn, N. Y.; Sarah Pekarsky, 737 Gates avenue; one-story garage, 20x22; $1000.

Brooklyn, N. Y.; George Potts, 1418 President street; one-story public garage, 100x100; $25,000.

Brooklyn, N. Y.; H. J. Callister, 4521 Fifth avenue; one-story garage, 20x50; $2500.

Brooklyn, N. Y.; Liberty Wyona Co., Inc., 146 Lyona street; one-story public garage, 80x82; $12,000.

Brooklyn, N. Y.; Arene Homes Co., 1077 E. 12th street; seven one-story garages; $4000.

Brooklyn, N. Y.; Holding Co., 501 68th street; one-story garage, 17x17; $2000.

Brooklyn, N. Y.; Slatrose Realty Co., 1404 Pitkin avenue; one-story garage; $1000.

Brooklyn, N. Y.; G. Riasler, 719 E. Third street; one-story garage, 18x27; $1200.

Brooklyn, N. Y.; B. C. Realty Co., 1563 58th street; two one-story garages, 16x18 each; $2000.

Brooklyn, N. Y.; George Schumer, 118 Count street; one-story garage, 20x20; $1000.

Brooklyn, N. Y.; David Marcus, 1802 Park Place; one-story garage, 22x27; $2000.

Buffalo, N. Y.; Huntington Fink Lumber Co., 621 Tonawanda street; one-story garage, 35x48; $2500.

New York, N. Y.; Abraham R. Meyer, 32 Green street, Newark, N. J.; one-story garage, 100x129; $125,000.

Utica, N. Y.; Thomas A. Jones, 122 Genesee street; one-story garage, 38x70; $2500.

Harrisburg, Pa.; S. W. Shoemaker, 1545 N. Sixth street; one-story garage, 35x60; $2000.

Philadelphia, Pa.; Frank R. Belotta, Seventh and Christian streets; two-story garage, 46x70; $8000.

Philadelphia, Pa.; E. Sutra & Sons Co., N. E. corner Thompson and Clementine streets; one-story garage, 25x36; $2000.

Philadelphia, Pa.; George B. Smitheman, 1119 N. Front street; two-story private garage, 26x27; $4000.

Pittsburgh, Pa.; L. Rothamn, 28th and Liberty avenue; one-story garage, 20x100; $3500.

Wilkes-Barre, Pa.; Gulf Refining Co., Frick building annex, Pittsburgh, Pa.; one-story service station, 40x80.

Rock Hill, S. C.; City Motor Co., D. B. Fadden, manager; two-story garage, electric elevator ;$10,000.

Sioux Falls, S. D.; Thompson-Braley Motor Co., Dakota avenue and 10th street; one-story public garage and service station, 50x150.

Sioux Falls, S. D.; Brooks Tire and Repair Co., 209 W. 10th street; two-story service station, 100x110.

Paris, Tex.; W. B. Wise; one-story garage; $25,000.

Berkley, Va.; Alvah H. Martin Estate, 1215 Bank of Commerce building, Norfolk, Va.; one-story garage; $2500.

Norfolk, Va.; H. Rush, 917 Maryland avenue; one-story garage; $2000.

Martinsburg, W. Va.; Dwight Sprinkle, care Sprinkle Brothers; one-story frame and stucco private garage, 24x45; $3000.

Milwaukee, Wis.; Standard Oil Co. of Indiana, Bumider building; one-story filling station; $2500.

Racine, Wis.; W. H. Pugh; one-story garage, 60x84.

CONTRACTS AWARDED.

Decatur, Ill.; Constant & Gise; one-story private garage, 26x32; for J. E. Downing, 256 Main street.

Chicago, Ill.; John Bonnickson, 9225 Commercial avenue; one-story garage, 24x42; for Chicago Ship Building Co., 101st street and Calmut river; $1500.

Peoria, Ill.; Joseph K. Dixon, 215 Ludie avenue; one-story service building, 18x36; $2500.

Indianapolis, Ind.; State Oil Co. of Indiana, Lord & Davidson streets; one-story filling station; $6000.

Detroit, Mich.; Louis Gardella, 204 Randolph street; one-story private garage; $1300.

St. Louis, Mo.; Truin-Colnon Construction Co.; one-story garage; for Mrs. C. McL. Clure, 4969 Hartense place; $4000.

St. Louis, Mo.; William Schroeder, 5210 Terry street; one-story private garage, 19x21; for L. Marrell, 5275 Westminster street; $1100.

East Orange, N. J.; Spatz & Law, 223 State street, Bloomfield, N. J.; one-story garage, 20x38; for Passaic Bergen Lumber Co., 47 Lawrence street; $1500.

Jersey City, N. J.; George Hoefer, 237 Bayview avenue; one-story garage; for Revolator Co., 346 Fairfield avenue; $1500.

Orange, N. J.; Konrad H. Fisher, 205 Essex avenue; one-story private garage; $1500.

Salem, N. J.; Gayner Glass Works; one-story private garage, 100x100; $10,000.

Trenton, N. J.; War Community Camp, care D. G. Bennett, Second and Cherry streets; one-story community service station, 30x100; $8000.

Rochester, N. Y.; Bridgeford Machine Tool Works; one-story garage, 31x60; $2500.

Rochester, N. Y.; Horace T. Hatton, 507 Cutler building; one-story garage, 23x34; $1000.

Cincinnati, O.; Harry Knapke; one-story garage, 23x34; for McBirney Dairy Co., St. James avenue, Walnut Hills; $1000.

Easton, Pa.; Howard D. Folkenson, 42 S. 10th street; one-story public garage, 20x40; for Way Brothers, 29 S. Third street; $7000.

Philadelphia, Pa.; William Mariott; one-story brick garage, 9x15, at 2863 N. Mutter street; for Carl Breischot, $600.

Philadelphia, Pa.; H. Betel; one-story brick garage, 16x16, at 347 East Wyoming avenue; for Mrs. N. T. Will; $525.

Philadelphia, Pa.; Frank C. Graham; two-story stone garage, 25x27.4; at 5970 Drexell road; for George B. Smitheman; $1175.

Pittsburgh, Pa.; D. F. Crawford & Co., 603 Fifth avenue; one-story private garage, 20x45; for Frank Weinstein.

Pittston, Pa.; Turon & Schwartz; one-story garage, 41x60; for T. W. Burke, 21 Mill street; $5000.

Texarkana, Tex.; C. A. Hammer; one-story brick and stucco filling and auto supply station, 30x50; at Fourth and Pine streets; for C. E. Palmer; $3000.

Norfolk, Va.; B. O. Williams, 13th and Debroe avenue; one-story garage; for Crawford & Hottingham; $2500.

Norfolk, Va.; G. F. Wilkinson, Arcade building; one-story garage; for Taylor & McLean; $2300.

Norfolk, Va.; W. F. Sawyer, 2514 Granby street; one-story garage; for F. M. Sutton, 208 W. 36th street; $2500.

Norfolk, Va.; W. E. Dear, 201 Graydon avenue; one-story garage for W. G. Akman, 1905 Granby street; $2200.

Norfolk, Va.; Johnson Construction Co., Law building; 15 one-story garages in Riverview, 30x100; for D. W. Roper, 308 Granby street; $25,000.

Milwaukee, Wis.; L. F. Crosby, 200 Queen Ann Place; one-story garage, 22x48; for Stratton Ladish Milling Co., Mitchell building; $12,000.

Marbeth, Pa.; Alphonsis Dragnitte, 238 N. 67th street, Philadelphia; one-story private garage, 13x24, for J. H. Wilson, Chestnut street and Marbeth avenue; $1800.

Pittsbugh, Pa.; Patrick Duffy; one-story private garage, 30x60, for N. B. Call, Hazelwood and Murray streets; $5000.

Pittsburgh, Pa.; Napoleon Aloise, 19 Carrier street; one-story garage, 20x25, for C. L. Roth, care Jacob Roth, 6561 Bartlett street; $6000.

Pittsburgh, Pa.; Crowell Lundoff, Little Co., Cleveland, O.; one-story garage, for Hammond Packing Co., Chicago; $50,000.

Pittsburgh, Pa.; J. A. Craig, East End Trust building; one-story private garage, 20x25, for S. A. McClurg, 1232 Murray Hill avenue; $1500.

Philadelphia, Pa.; George Stock; one-story frame garage, 10x16, west side Delaware avenue, north Comly street; $600.

Philadelphia, Pa.; Ernesto Fortino; one-story brick garage, 16x50, at 4964 Thompson street; for Ferdinando Faguain; $1000.

Philadelphia, Pa.; James N. Mitchell; one-story garage, 20x20.6; north side McCallum street, west Lincoln drive; $2500.

Philadelphia, Pa.; James N. Mitchell; one-story stone garage, 20x20, at 6704 Lincoln drive, for Thomas Raby, Jr.; $1800.

Philadelphia, Pa.; Edward P. Doyle, 5250 Walnut street; one-story garage, 12x25; for Nola B. Jackson, 105 N. 63rd street; $1200.

Philadelphia, Pa.; J. Koch; one-story brick garage, 20x20, at 2830 Edgemont street; $500.

San Juan, Tex.; William Horn; one-story garage, 50x120; interlocking tile and stucco four-ply, built up roofing, cement floor, equipment included; $15,000.

TRACTOR SALESMANSHIP

Some of the Certain Essential Requisites Necessary to Market Tractors in a Way That Will Keep Them Sold.

By W. H. Bennett, Sales Manager, National Tractor Co., Cedar Rapids, Ia.

WHEN a former president of a prominent tractor company recently asked me if in my opinion I thought all the tractors built this coming year would be sold, I frankly and unhesitatingly answered "Yes," marveling all the while at the small vision some men seem to have regarding the distribution of one of the world's most promising products.

Just as frankly I am willing to go a step farther and say that I believe there will not be enough good tractors to fill the needs of the farmers this coming year, nor the next, nor even the next. Whether the war is over by Christmas, or whether it lasts for another 12 months, all the good tractors that will be built for months to come will surely find a hungry market.

With the fringe of the market barely touched in this country, regardless of war, and with the devastated regions of France, Belgium and Russia all waiting for motor power—the rest of the world, a prospective market—with the exception of the "Imperial" (?) German region (the needs of which none of us are concerned at present)—with thousands of farmers' sons educated in the old methods entering new pursuits, with thousands of other men from the cities turning to the farms and insisting on modern power—the good farm tractor has, without question, quibbling or parley, come to stay. The coming year is going to see a more popular demand than ever was known for good farm tractors, and the succeeding years will see the tractor industry grow in prosperity at a faster rate than any other needed implement on the farms, ranches, plantations, estates and haciendas of the world.

Marketing a Code of Ethics.

The marketing of tractors in the truly essential way is not so much a problem of salesmanship. It is a code of ethics. Power farming implements must be implements of merit. Tractors cost so much money that the men who buy them will not buy blindly. As with all new inventions there have been hundreds of tractors put out that have not stood up under test. Like pre-born babes, they have been thrust out upon the world before their time. This has naturally worked a hardship on the industry. For every machine that has failed there have probably been a hundred prospects who have become skeptical. Now they must be "shown" that the machines are right and will do the work their builders claim for them.

Farmers of today want to know that their investments are going to be safely protected. They want service if needed. They want simple and trouble proof machines that their sons and their daughters, or even their wives, can operate with safety. They want machines that will cost a reasonable amount to buy and will do the work for a reasonable amount of money—tractors that will not need continual repairs—tractors that will not cause delays in busy times. They want sensible, proven, time tested tractors, and when they find such machines they will buy them freely.

Demonstrations Prove Statements.

The market being certain, the duty of the man who sells is to make known the merits of the tractor to the prospects in his territory. He must be prepared to prove his statements. Demonstrations are demanded in most localities. Let them be given frequently. Prospects must be followed carefully and with persistent occurrence. The farmer wants to know it if a certain tractor will make him more money than another type. He is interested if the tractor will require less attention, and wishes to be informed on every good point that means dependable service for his own requirements.

W. H. Bennett, Sales Manager, National Tractor Co., Cedar Rapids, Ia.

However, he is apt to forget the merits of a certain tractor when a competitor is on the job. Remember, at the present, competition is more keen in the tractor market than in almost any other legitimate business. This is natural. New industries of promise always attract the attention of progressive, far-seeing men. The tractor salesman must keep ever busy, regardless of hours, conscious of the fact that farmers are particularly rushed in these months of war time and cannot stop their work to talk unless grim necessity demands it. Night time and off time contain the only moments most farmers can afford to spare unless keenly interested.

Cultivation of the territory—whether large or small—must be practised again and again. Thoroughness, alertness, truthfulness, sobriety, all are needed to put the tractor into the hands of the farmers in a way that will make the machines stay sold.

Every Tractor Sold a Boost.

Every competitive tractor introduced into a territory means less chance for your own. Every tractor of your own that goes into a territory is a boost for you. Play fair. Tell the truth. Practise the Golden Rule. By this method a good, permanent, prosperous tractor business will inevitably be built up.

False sales methods will not stand in tractor salesmanship—"He profits most who serves best," is particularly applicable to the man who sells tractors regardless of whether he be sales manager, automobile dealer, implement man or amateur salesman. It is of paramount importance to the man who sells tractors that he believes absolutely in his machine, that he instills this belief into the men with whom he deals, whether he be co-worker or customer. He must realize that in sending a tractor out to a farm he sends with it his personal word and reputation.

He has promised that the machine is going to take the place of horses, and to do this work without trouble. He is going to be held personally responsible for his statements even more than the manufacturer he represents. The successful tractor salesman does not forget his customer; neither does the house which furnishes the tractor. Both seek to keep him satisfied and the tractor running successfully. No tractor should remain idle for an hour through lack of attention. Service men if needed should drop less essential work and lose no time in reaching the customer in the effort to keep the product of the farm in A-1 running shape should accident or trouble occur.

Success in tractor salesmanship depends almost entirely on furnishing machines that will do all that is claimed for them, so that the farmer gets what he buys and stays satisfied. To be successful, in its truest sense, it is necessary to tie to a proven tractor and to work fair and square at all times.

WILL BUILD TRACTORS AT BIG SAGINAW PLANT.

According to statement made by Secretary Kerby of the Board of Trade of Saginaw, Mich., the Marquette plant of the General Motors Corporation in that city is to be given over to the manufacture of farm tractors. The plant is now engaged in war work and as soon as the contracts have been completed the purpose is to convert it to tractor production. There is belief that the General Motors Corporation will manufacture some of the parts required for building Samson tractors at this plant.

(Continued from Page 43.)

Where the volume of business permits, it is advisable to use three ledgers, a general ledger, a purchase ledger and a sales ledger, keeping controlling accounts of the purchase ledger and the sales ledger in the general ledger.

Where only one ledger is used it should be divided into three sections corresponding with the above.

The balances of the purchase ledger and of the sales ledger, or of these sections of the ledger if only one book is used, must agree with the balances of the accounts payable account and of the accounts receivable account. The advantage of these controlling accounts is that the aggregate of accounts payable and of accounts receivable can be had at any time without listing the balances of the individual accounts.

Customers are charged with goods purchased direct from the charge tickets. These tickets are first listed, then turned over to the bookkeeper, who posts them to the debit of the proper accounts, listing the amounts as he posts, then comparing his total with that of the first list, which must agree. Credit entries for allowances, reductions, cash discounts, or returned goods, are made from credit tickets in exactly the same manner.

Posting to the ledger therefore must come from one of four sources—the cash book, the journal, the invoice book or the sales and credit tickets.

Monthly Summary of Business.

This record, Form A, will be found very useful for monthly and yearly comparisons of expenses and ratios. It is arranged with columns for sales, both cash and credit and total, and for the various expenses of the business. The figures on this statement are taken from the ledger.

Each month the figures for that month should be added to the previous total so that the record will give the totals from the first of the year to date as well as the monthly totals.

Profit and Loss Statement.

The amounts for making up this statement, Form B, can be had from the ledger and from the trial balance. It is made up at such times as the inventory is taken. A physical inventory should be taken at least once a year. The basis should be cost with conservative deduction for obsolete and shelf worn goods. The inventory at the beginning of the period is, of course, that brought down from the end of the last period.

When monthly profit and loss statements are desired, and where the percentage of overhead and profit is known, the approximate cost of the goods sold can be arrived at in the following manner: Deduct the percentage of overhead and profit from 100 and multiply by the amount of the net sales; the result will be the cost of the goods sold, which when deducted from net sales will give the approximate gross profit on sales.

If desired, the difference between the values placed on the inventory and the actual cost of same can be shown on the statement. Show the actual cost of inventory and then the deduction under the title "Stock Depreciation," carrying the net forward as illustrated. While this is not necessary, it is valuable information and this method is recommended.

The total net profit as shown by the statement is that carried to the credit of the proprietor's account in the ledger.

Balance Sheet.

Ledger accounts should be kept by the double entry principle with all real (asset and liability) accounts, as well as with all nominal (profit and loss) accounts. A balance sheet of the same date as the profit and loss statement should be made up from the balances of all real accounts. The ordinary asset and liability accounts and a logical classification thereof are shown by Form C.

ACCOUNTS AND THEIR EXPLANATIONS.

REAL ACCOUNTS.

1. Cash on Hand and in Bank.

Charge this account with the total receipts of the month and credit it with the total disbursements as shown by the cash book. The balance should agree with the cash book balance.

2. Notes Receivable—Trade Customers.

Charge this account with all notes, time drafts and acceptances held against others and credit it with the same when paid or otherwise disposed of. The balance will show the uncollected notes receivable.

3. Accounts Receivable—Trade Customers.

Charge this account with the total of the charge tickets of the month, and credit it with the cash payments by customers (taken from the cash book at end of month) and with notes receivable, discounts, returns and allowances (from the journal and credit slips). Balance of this account must agree with the sum of the balances of trade customers' accounts.

4. Reserve for Bad Debts.

Credit this account with an estimated amount, based on charge sales, sufficient to provide for losses, and charge the account with the balances of personal accounts when hope of collection is abandoned.

5. Prepaid Insurance.

Charge this account with all insurance, fire, burglary, fidelity, plate glass, liability, etc. At the end of each month charge the proper accounts (Nos. 35 and 44) with

PROFIT AND LOSS STATEMENT, (Form B.)

								Per Ct	Per Ct.
23	Sales	.....	..	.....	..	$4,659	96		
24	Less Sales Allowances	.. .	.	.....	..	2	00		
	Net sales	.....	..	.....	..	4,657	96	......	100.0
	Inventory of merchandise at beginning	... .	..	$3.451	09				
25	Merchandise Purchases (cost delivered at store)	.....	..	2,759	67				
				6,210	76				
	Deduct inventory of merchandise at closing	$3,062	17	.....	..				
	Less Stock Depreciation	153	11	2.909	06				
	Net cost of goods sold	.....	..	.....	..	3.301	70	......	70.9
	Gross profit from trading	.....	..	.....	..	1,356	26	......	29.1
	BUYING EXPENSE.								
26	Salaries and Wages of Buying Force	25	00						
27	Miscellaneous Buying Expense	14	00						
	Total buying expense	.....	..	39	00	.....	..	0.8	
	SELLING EXPENSE.								
28	Salaries and Wages of Sales Force	177	33						
29	Advertising	30	00						
30	Miscellaneous Selling Expense	3	75						
	Total selling expense	.....	..	211	08	.....	..	4.5	
	DELIVERY EXPENSE.								
31	Salaries and Wages of Delivery Force	102	67						
32	Miscellaneous Delivery Expense	8	08						
	Total delivery expense	.....	..	110	75	... .	..	2.4	
	GENERAL EXPENSE.								
33	Management and Office Salaries	269	00						
34	Office Supplies and Expense	22	03						
35	Insurance on Stock and Store Equipment	1	61						
36	Taxes on Stock and Store Equipment	2	50						
37	Losses from Bad Debts	33	56						
38	Miscellaneous General Expense	26	79						
39	Rent	71	25						
	Total general expense	. . .	..	426	74	787	57	9.2	16.9
	Net profit from trading	.....	..	.....	..	568	69	......	12.2
	INCOME FROM OTHER SOURCES								
42	Interest	17	09						
43	Cash Discounts on Merchandise Purchases	6	55						
44	Rent income (net)	16	52						
45	Miscellaneous Outside Income	2	00	.....	..	7	98		
	Total net profit	.....	..	.....	..	576	67		

their proportion, the balance being an asset as "Prepaid Insurance."

6. Accrued Interest Receivable.

Charge this account at the end of the period with all accrued interest (not yet paid) on notes, etc., due from others, crediting "Interest Account." When the interest is received it is credited to "Accrued Interest Receivable."

7. Store Property.

Charge this account with the purchase price of the store property. Do not charge repairs to this account, unless they are in the nature of permanent improvements. A fair amount should be periodically credited to "Reserve for Depreciation."

BALANCE SHEET, ... (Form C.)

	ASSETS.						
	CURRENT ASSETS.						
1	Cash on hand and in bank	.....	..	$1,611	67		
2	Notes Receivable—Trade Customers	.....	..	191	84		
3	Accounts Receivable—Trade Customers	$3,518	81				
4	Less Reserve for Bad Debts	33	56				
				3,485	25		
	Inventory of merchandise (at cost)	.....	..	2,909	06		
5	Prepaid Insurance	.....	..	100	14		
6	Accrued Interest Receivable	.....	..		71		
	Total current assets	.....	..	...	.	$8,298	67
	FIXED ASSETS.						
7	Store Property	4,500	00				
8	Warehouse Property	1,975	00				
		6,475	00				
9	Less Reserve for Depreciation on Store and Warehouse	26	98				
				6,448	02		
10	Store Equipment	.....	..	272	71		
11	Office Equipment	.....	..	74	37		
12	Delivery Equipment	.....	..	396	67		
	Total fixed assets	.....	..	.....	..	7,191	77
	Total assets	.....	..	.....	..	15,490	44
	LIABILITIES AND CAPITAL.						
	CURRENT LIABILITIES.						
13	Notes Payable—Trade Creditors	1,210	50				
14	Notes Payable—Banks	900	00				
15	Accounts Payable—Trade Creditors	3,685	72				
16	Accounts Payable—Others	485	00				
17	Accrued Interest Payable	19	23				
18	Accrued Salaries and Wages	82	00				
19	Accrued Taxes	7	75				
	Total current liabilities	.....	..	6,390	20		
21	Mortgages Payable (warehouse)	.....	..	1,250	00		
	Total liabilities	.....	..	7,640	20		
22	Proprietor's Capital Account	.....	..	7,850	24		
	Total liabilities and capital	.....	..	.....		15,490	44

8. Warehouse Property.

Charge this account with the purchase price of the warehouse property. Do not charge repairs to this account, unless they are in the nature of permanent improvements. A fair amount should be periodically credited to "Reserve for Depreciation."

9. Reserve for Depreciation on Store and Warehouse.

Credit this account with the amount of depreciation on store and warehouse, and charge same to "Rent Income" (No. 44).

10. Store Equipment.

Charge this account with the value of all equipment such as counters, shelving, scales, measures, etc., used in the conduct of the business. A fair amount should be written off periodically for depreciation.

11. Office Equipment.

Charge this account with office furniture, desks, safe and other office appliances (not included in 34). A fair amount should be written off periodically for depreciation.

12. Delivery Equipment.

Charge this account with the cost of automobiles, wagons, horses and harness. This account must not be charged with repairs to automobiles and wagons, horseshoeing or anything of this nature. A fair amount should be written off periodically for depreciation.

13. Notes Payable—Trade Creditors.

Credit this account with all notes given to trade creditors or time drafts accepted in their favor and charge the account as the same are paid. Balance of this account shows the amount of notes payable outstanding.

14. Notes Payable—Banks.

Credit this account with all notes given to banks and charge the account as the same are paid.

15. Accounts Payable—Trade Creditors.

Credit this account with merchandise bought on account, the amount being carried to this account monthly from the total of the invoice book and charge it with all merchandise returned and reductions (journal), and payments made and discounts taken (cash book). Balance of this account must agree with the sum of the balances of trade creditors' accounts.

16. Accounts Payable—Others.

Credit this account with amounts owing to creditors other than trade creditors.

17. Accrued Interest Payable.

Credit this account at the end of the period with interest accrued (not yet paid) on notes, etc., due others, charging "Interest Account." When the interest is paid it is charged to "Accrued Interest Payable."

18. Accrued Salaries and Wages.

Credit this account with salaries and wages earned and unpaid at the end of each month and charge the proper expense accounts. When payment is made this account is charged and closed out and the balance of the pay roll charged in the regular way.

19. Accrued Taxes.

Credit this account with the taxes due up to the end of each month, charging the proportionate amounts to the accounts in which they belong. When the taxes are paid this account will be charged.

20. Proprietor's Drawing Account.

Charge this account with all withdrawals of cash (not salary). At the end of the period the amount of this account is closed into proprietor's capital account.

21. Mortgages Payable.

When a mortgage is placed upon real estate (or assumed at the time of purchase) this account is credited. When paid it is charged.

22. Proprietor's Capital Account.

This account represents the proprietor's net capital. At the end of the period the net profit is credited to this account. The amount of his drawing account is then closed into this account. The balance of the account is his net capital at time of closing.

In the event of a partnership each partner's net capital would be shown in his respective account and the net profit (or loss) carried to the credit (or debit) of their accounts in agreed proportions. In the event of a corporation this account represents the amount of the issued capital stock and the profit or loss is carried to "Surplus" account.

NOMINAL ACCOUNTS.

23. Sales.

Credit this account with the total sales of all merchandise, the charged sales being taken from the total of the charge tickets for the month and the cash sales from the "Cash Sales" column in the cash book. Returns should be charged at selling price for all merchandise returned by customers whether for cash or credit. The difference in this account will be the net sales which is transferred to the credit of "Trading Account."

24—Sales Allowances.

Charge this account with any allowance given a customer not contemplated when sale was made. Allowances should not be charged to "Sales," but closed at the end of the period into "Trading Account."

25. Merchandise Purchases.

Charge this account with the face of the invoices of merchandise before deducting cash discounts. The account is also charged with freight, expressage and drayage on merchandise purchased. Credit the account with any returns of merchandise made to manufacturer or wholesaler and with any allowances for defects in goods received from manufacturer or wholesaler. The balance of the account is transferred to the debit of trading account.

26. Salaries and Wages of Buying Force.

Charge this account with part of salary of proprietor, active partner and manager or buyer and the wages of office force proportionate to the time given to buying. If, for example, the proprietor estimates altogether that he gave one-fourth of his time to buying and three-fourths to selling, then one-fourth should be charged to this account and three-fourths to "Salaries and Wages of Sales Force." Similarly the estimated number of hours a week given by any member or members of the office force to buying should be charged to this account.

27. Miscellaneous Buying Expense.

Charge this account with the travelling expense of buying trips and other expense incurred in buying (not covered by account 26).

28. Salaries and Wages of Sales Force.
Charge this account with wages and other remunerations of sales persons, order takers and all others engaged in selling, both as regular and extra force; also with the part of the salary of the proprietor, active partners, or manager, and of the wages of the office force proportionate to the time given to selling.

29. Advertising.
Charge this account with all expenditures for advertising purposes, such as space in newspapers and periodicals, space on street cars and billboards, circulars and postage thereon, advertising novelties, trading stamps, charitable donations, window display, electric signs, etc.

30. Miscellaneous Selling Expense.
Charge this account with the cost of wrapping paper, cartons, twine, salesmen's order books, and all other items of direct selling expense not covered by "Salaries and Wages of Sales Force" and "Advertising."

31. Salaries and Wages of Delivery Force.
Charge this account with regular and part time of employees engaged in delivering and with the part of the wages of other employees, whether on sales force or office force, proportionate to the time given to delivery work.

32. Miscellaneous Delivery Expense.
Charge this account with all stable and garage expense, including all repairs, taxes, licenses, upkeep and with the depreciation charged on the delivery equipment; also charge this account with payments for express, parcel post and contract delivery service.

33. Management and Office Salaries.
Charge this account with the salaries of the manager, bookkeepers, office clerks, stenographers and of other general office help not otherwise charged.

34. Office Supplies and Expense.
Charge this account with purchases of stationary of all sorts, account books and forms (except selling and stock forms), typewriter supplies, printing and postage (except advertising), and depreciation on office equipment.

35. Insurance on Stock and Store Equipment.
Charge this account with all expense of insurance, fire, burglary, fidelity, plate glass, employers' liability and other. This account is not to be charged with insurance on store or business property.

36. Taxes on Stock and Store Equipment.
Charge this account with taxes on all stock and store equipment. As taxes are not payable in advance, the amount charged this account must be credited to "Accrued Taxes."

37. Losses from Bad Debts.
Charge this account with the amount that has been reserved for bad debts (4).

38. Miscellaneous General Expense.
Charge this account with heat, light, repairs, depreciation on store equipment and with any items that cannot be charged directly to any of the above particular accounts.

39. Rent.
Charge this account with all rents paid. If the store is owned, rent should be charged equivalent to the amount it could be rented for to others, crediting "Income from Other Sources;" in the latter event, "Income from Other Sources" should be charged with the taxes, insurance, repairs and depreciation on the store.

40. Trading Account.
This account shows the inventory of merchandise at opening and is not touched again until the books are closed. It is then charged with merchandise purchases (25) and sales allowances (24) and credited with sales (23). The inventory at closing is then credited and the balance will show the gross profit on trading. The gross profit is transferred to the credit of the "Profit and Loss Account." The inventory is then brought down as a new balance.

41. Profit and Loss Account (from Trading Operations).
Charge this account with the balances of all the expense accounts and credit it with the gross profit from trading; the difference will be the net profit or loss, which is closed into the proprietor's account; if a partnership, to the partners' accounts, according to their several interests, and, if a corporation, to the surplus account.

42. Interest.
Charge this account with all interest paid and credit it with all interest received and close into "Profit and Loss Account."

43. Cash Discount on Merchandise Purchases.
Credit this account with all cash discount taken on purchases of merchandise. The account is closed into profit and loss.

A record of such discounts available but not taken—cash discounts lost—will be found of use.

44. Rent Income (Net).
If the store is owned, the rent which has been charged to account 39 should be credited to this account and it should be charged with insurance, taxes, depreciation and repairs on store. The account is closed into "Profit and Loss."

45. Miscellaneous Outside Income.
Credit this account with incidental receipts such as toll from telephone pay stations in store, etc.

(Continued from Page 16d.)

son as chairman, and the secretary of the association, Charles A. Butler, was made manager, he acting under the authority of the show committee. Then the historic Madison Square Garden was engaged, and when the number of applicants for space was found to be so numerous that the Garden would not afford adequate space for the show, the 69th Regiment Armory, but a block distant from the Garden, was secured. The combination of the two buildings will give more exhibition area than has ever been available at any previous exhibition.

Following the custom established when both passenger car and truck shows were held the exhibition will continue for two weeks, the passenger car display being opened the evening of Saturday, Feb. 1, and continuing until the evening of Feb. 8, and the truck show being opened the morning of Feb. 10 and continuing until the evening of Feb. 15, the two covering a period of 15 days.

The original intention was to have the display of passenger vehicles in both buildings, but to have the truck exhibition in Madison Square Garden. The large number of applications for space and the decided interest manifested brought about a change of plan, so that both buildings will be used both weeks, but the displays of accessories, supplies, equipment, etc., for trucks will be shown only at the Garden the second week.

During the first or passenger car show cars and accessories, equipment, supplies, parts, etc., will be exhibited in both buildings, but during the second or truck show vehicles will be shown at the Garden and the Armory, and the accessories only at the Garden. The buildings will be open from 10:30 in the morning until 11 o'clock in the evening. Each ticket sold will entitle the holder to admission to both buildings, there being a coupon attached that will be accepted at either when the original has been surrendered, and the coupon may be used at any time during the show, its use not being restricted to any one day. This is a privilege that was never entertained by the management of previous shows and it is granted with the belief that any person seriously considering buying should have all the time that is desirable for seeing the exhibits, and the show is much too large to be seen in any one day unless done with the intention of viewing only certain displays.

The buildings will be handsomely decorated, the work at the Garden being in charge of M. A. Singer and at the Armory in charge of Joseph St. Petrie. Many changes are necessary in arrangement of the balconies and floors to have the display stands accessible. The decorating will not be spectacular, but it will be in every way pleasing and no doubt satisfactory settings for both cars and trucks. There will be the customary band and orchestral programmes of music during the afternoon and evening of each day.

Show Organized by a Committee.

The committee arranging the show for the Automobile Dealers' Association of New York consists of Charles H. Larson, chairman, Cutting-Larson Co. (Oldsmobile); R. J. Gilmore, Packard Motor Car Co. of New York (Packard); Walter Wood, Van Cortland Vehicle Co. (Peerless); William C. Poertner, Poertner Motor Car Co. (National); Harry J. DeBear, Maxwell Motor Sales Co. (Maxwell). With this committee is associated William M. Sweet of the executive committee of the Motor and Accessory Manufacturers' Association. This committee has been extremely active and energetic and so far as the show from the viewpoint of the public is concerned, there will be nothing lacking because of the extremely limited time for preparation.

Statement should be made that despite the fact that the dealers of New York took over the show there is no antagonism on the part of the National Automobile Chamber of Commerce, which appointed a committee consisting of C. C. Hanch, J. Walter Drake and Samuel A. Miles, to confer with the New York and Chicago dealers' associations, and there has been ample manifestation of cooperation. Besides this the Motor and Accessory Manufacturers' Association formally sanctioned these shows.

Special Features of Show Weeks.

There is reason to expect a very large attendance of those engaged in or identified with the industry, for there will be the winter meeting of the Society of Automotive Engineers held in New York City, Feb. 4-6, with a "Victory" dinner at the Hotel Astor the evening of the final day. There will be a meeting of the eastern members of the National Automobile Dealers' Association, an organization that has upwards of 4500 members, and is becoming more and more important. There will be a dinner given in honor of Capt. E. V. Rickenbacker, who is the leading aerial "ace" of the American army, which will take place at the Waldorf-Astoria the evening of Feb. 3, and which will be jointly participated in by the American Automobile Association, the Society of Automotive Engineers, the National Automobile Chamber of Commerce, the Motor and Accessories Manufacturers' Association, the Automobile Club of America, the Motor Club of New York and various aeronautic clubs. The toastmaster will be Congressman Clifford Ireland, a member of the contest board of the American Automobile Association.

There will be numerous conferences and meetings in addition to the fixtures that have been specified and during the truck show there will be a conference of truck manufacturers which may have important bearing on the future of the industry, so far as this can be determined by any organization. The truck manufacturers' meeting will be under the auspices of the National Automobile Chamber of Commerce.

Exhibits Greatly Varied and Many.

The prospects for the exhibition of trucks is maintained to be exceptional. The original plans for the show have been amended to meet demands for display space, and statement is made that the number of exhibitors will be the largest ever seen together at any one time. There will be trucks of all makes, types and sizes, ranging in capacity from 800 pounds to 15,000 pounds. There will be road tractors all kinds and of various power ratings, which will have semi-trailer and trailer equipment. There will be innumerable standard and special bodies with quick discharging equipment, both manually and power operated, and, of course, bodies designed for general and specific work.

The list of exhibitors of trucks, tractors, conversion units, etc., although not complete, shows a total of 52, which includes a number built by concerns that have recently begun production, among these being the Graham, manufactured by Graham Bros., Evansville, Ind.; the Paige, made by the Paige Motor Car Co., Detroit; the Shaw Taxi, made by the Walden W. Shaw Co., Chicago; the Ward La France, made by the Ward La France Co., Elmira, N. Y.; the Traffic and the Warren trucks. Another machine that has not been seen in the East is the Lapeer tractor, designed for use with semi-trailers and trailers. The Nash "Quad" will be the only four-wheel driven truck exhibited, and the Troy Trailer Co.'s agent will display a series of these units. The Jaxon Steel Products Co., Detroit, will show a truck equipped with Jaxon wheels, which are claimed to be extremely efficient, and there will be one or more Fordson tractors shown. The Holt Manufacturing Co., Peoria, Ill., will also show a gasoline locomotive.

The number of accessory exhibitors shown in the accompanying list is far from complete, and it shows a total of 47, which will probably be at least doubled.

THE CHICAGO EXHIBITION.

The Chicago exhibition will take place at the Coliseum and Annex, and the First Regiment Armory, this following the plan that has been the vogue for years in that city, and it will be under the auspices of the Chicago Automobile Trade Association and the management of Samuel A. Miles. Mr. Miles, having for years managed the Chicago shows, was appealed to by the show committee of the association and he undertook to do in weeks what had previously been accomplished in months with a well trained organization.

Fortunately Mr. Miles was able to gather practically all of his own staff of employees and by resorting to extraordinary means for distributing applications for space and by the cooperation of the Motor and Accessory Manufacturers' Association the returns were obtained very quickly and in sufficient numbers to justify reasonable success. The publicity campaign was very productive and this brought in a large number of applications, so that there is every reason to believe that the Chicago show will be at least as large and quite as interesting and attractive as in former years. There was even no obstacle as regards decorations, for the association was able to take over what had been prepared for the show previous to the action of the National Automobile Chamber of Commerce, and so far as decorations are concerned the show will have what was originally intended for it.

Samuel A. Miles, Manager of the Show of the Chicago Automobile Trade Association.

The exhibition is announced to be the 19th annual Chicago show, and it will have all the usual features and the arrangements as to details will be practically unchanged. The passenger car show will have probably close to 80 different makes of machines, the incomplete list showing 69 exhibitors, and with the cars will be a large number of accessory, supply and equipment displays. The incomplete total of accessory exhibitors is 107, and there is every reason to believe that this will be increased 50 per cent. and 100 per cent. is by no means improbable.

The passenger car show will be opened Jan. 25 and will be concluded Feb. 1. The truck show will be opened Feb. 3 and end Feb. 6. The trucks will be shown in the Coliseum and the Coliseum Annex, this bringing this division under one roof.

The incomplete list of truck exhibitors shows a total of 43 makes, including the Fordson tractor and the Couple-Gear and Walker electric trucks. The Lapeer road tractor will be exhibited and there will be Nash and F-W-D four-wheel driven trucks. There will be a number of trucks of comparatively recent production, which include the "twin-frame" Panhard, the Graham, Mutual, Paige, Patroit, Tower and Winslow.

The number of accessories exhibitors accredited to the truck show, with many applications pending decision, is 42, and there is reason to expect that this will be increased to approximately 100. One will note that the Chicago truck division will be very much larger than any show previously held in America, and that the Coliseum will not be too large for it.

During the show there will be meetings of the National Automobile Dealers' Association, the Chicago section of the S. A. E. and a meeting of the Motor and Accessory Manufacturers' Association. The National Automobile Dealers' Association will hold its annual meeting Jan. 28-29 and will elect officers. This will probably be the most important gathering of the organization of the year. Partial lists of truck and truck accessory exhibitors are shown on these pages.

FORD PARTS NOW OBTAINABLE AT GARAGES.

Any garage can now handle Ford parts and secure the regular dealers' discount on same. This arrangement went into effect Jan. 1. The change is expected to not only increase the distribution of the Ford parts, but also in a broad way militate against the many so-called "fake" parts which have been on the market. The Ford Motor Co. had been trying out this method in a limited way and had found it successful.

The Ford policy is gradually being broadened with a view of making the car and its parts almost a matter of general merchandising.

HOBSON MAKES NEW CONNECTION.

Norman S. Hobson, who was commissioned a second lieutenant of artillery and later attached to the air service as artillery observer, will handle the sale of the products of the Connecticut Telephone and Telegraph Co., Meriden, Conn., in New England and upper New York state. Before entering the army he was agent in Fairfield county, Conn., for Saxon, Jordan and Scripps-Booth cars.

GOODYEAR HONOR ROLL.

Names of 70 men who gave their lives for their country appear on the honor roll of the Goodyear Tire and Rubber Co., Akron, O. A little better than one per cent. of the men who joined the colors from this big plant made the supreme sacrifice.

MAIN BEARING REAMER
K.R. WILSON
BUFFALO N.Y.

The Main Bearing and Connecting Rod Aligning Reamer is a high grade tool for Ford repair shops. It is operated easily with one hand and cuts absolutely smooth without chatter. Spaces between reamers and pilots ground five thousandths undersize. Simply file off front and rear bearing caps to fit snugly on pilots when main bearing bolts are drawn up tight, then ream; this will align both end bearings and touch high spots of center bearing, which is the one invariably out of line. Then repeat the operation, taking off less metal from the first and third cap and with all three bearing caps in place, ream to a finish. The job will be perfect and takes about 15 minutes as against half a day by hand scraping. It is also used to ream the connecting rods. One hour will cover all the time required to fit all engine bearings.

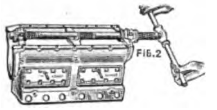


Fig. 2 shows the reamer in position, reaming the first and third bearings to get them down to match, which is the one invariably low. As soon as all three bearings are in alignment cut through with all three caps in position and the job is done.

If the crankshaft is slightly undersize simply file off the caps a little after they have been reamed and fitted; then put the crankshaft in place. Two or three light taps with the hammer will shape the bearing cap to perfect fit so that crankshaft will spot the entire length and width of bearings.

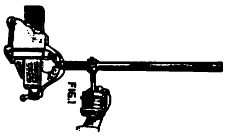


Fig. 1 shows the position of the reamer in fitting up connecting rod bearings, which are of the same size as main bearings.

Manufactured by K. R. Wilson, 10-16 Lock St., Buffalo, N. Y. Price, $28. A 24-inch tap wrench is included for use with same.

The Transmission Bushing Reaming Machine for Ford repair shops enables a person to completely remanufacture a transmission in a short time. All these reamers are especially designed with spiral flutes and do practically all their cutting on the point of the reamer; the flutes serve to give final, velvety finish by scraping slightly. Average time to insert, ream and take out the drum is two minutes each. All reamers and other parts of this machine are made from the finest material. The figures show the way each drum is set up in the machine and held perfectly rigid and in alignment with reamers.

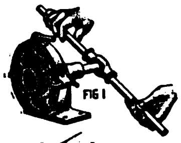
Fig. 1 shows reaming a reverse transmission drum bushing, using No. 3 arbor with No. 4 reamer.

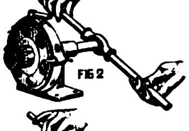
Fig. 2 shows reaming the slow speed drum bushing, using the reamer and arbor.

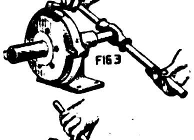
Fig. 3 shows reaming transmission brake drum bushing, using No. 5 combination arbor and reamer.

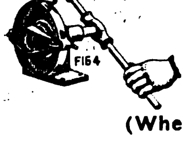
Fig. 4 shows reaming a triple gear bushing, using a No. 6 reamer and arbor with special clamp No. 8. The small end of triple gear just fits in the recess, holding squarely against the shoulder of the center gear.

Manufactured by K. R. Wilson, 10-16 Lock St., Buffalo, N. Y. Price, complete with all attachments and improvements, $68.



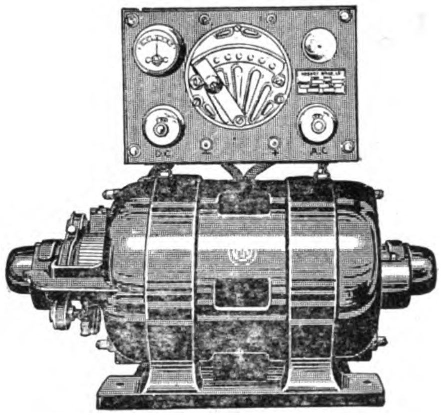






The HB Battery Charging Set connects a motor operating from a direct or alternating city current, mounted on the same shaft with a generator specially designed for charging auto starting and lighting batteries. Ball bearings support the motor generator shaft at each end.

The charging system includes a switchboard and is ready to operate by connecting the city current circuit to the upper binding posts. After making these connections the switch at the right controls the motor. The current for charging is delivered through the lower binding posts and is controlled by the switch on the left. This current may be regulated by moving the handle of the rheostat in the middle of the board. An ammeter shows the flow of current through the battery terminals.

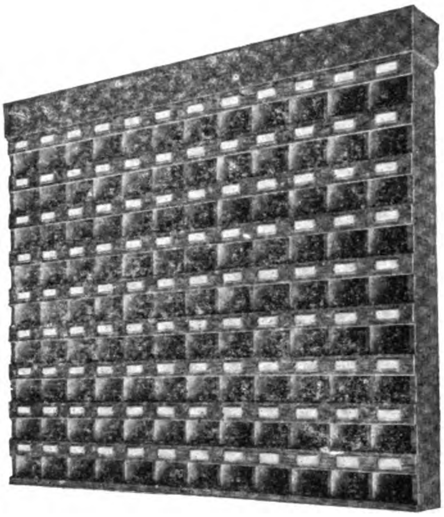


Automatic voltage control in the generator permits the charging of different voltage batteries at the same time. If batteries are connected up wrong, the negative pole of the battery to the positive terminal of the machine, the generator will protect the batteries by reversing its polarity.

Manufactured by Hobart Bros. Co., Troy, O. Price $195. Sold on terms of $15 cash and 9 payments of $20 per month.

NOTE—This article with corrections and revised prices has been reprinted owing to errors made in connection with the previous description.

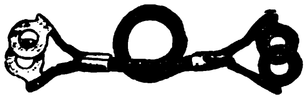
The HB Stock and Accessory Bin. Garage men have long felt the need for a convenient and economical equipment for handling stocks of valves, bolts, piston rings, bearings, grease cups, hose clamps and miscellaneous repair parts and supplies. The HB Stock and Accessory Bin, illustrated herewith, meets this demand. While this bin costs less, it is more attractive in appearance and is better built than the average built in equipment. The front partition and ends of the bin are genuine oak with light grained finish. The back is of sheet steel. It contains 108 compartments, five inches wide, five inches high and eight inches deep, each compartment bearing a metal card holder for indexing its contents. It is an attractive, serviceable and economical equipment, keeping stock where it is always easy to find.



Manufactured by the Hobart Brothers Co., Troy, O. Price, $38.40.

NOTE—This article with corrections and revised prices has been reprinted owing to errors made in connection with the previous description.

The Perfection Battery Connector eliminates the use of thumb nuts and can be slipped on and off a binding post in a second's time. There is no bother, no trouble.

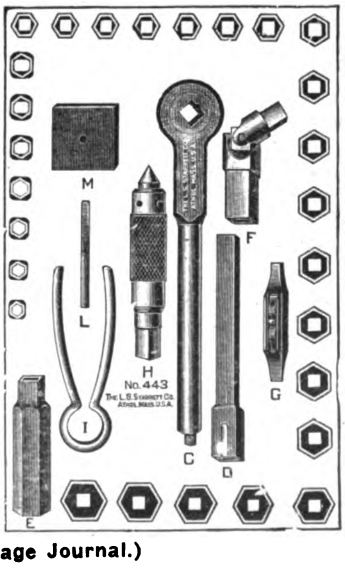


As there is nothing to give out, nothing to wear, the connector should last a lifetime.

Manufactured by the Fitzgerald Mfg. Co., Torrington, Conn. Price per dozen, 70 cents; per 100, $5; per 1000, $30. Write for discount.

The Starrett Ratchet Wrench consists of a ratchet with reversible pawl and a long wrench handle. With this wrench is also furnished an extension to reach in otherwise inaccessible places; also a universal joint for turning nuts and bolts when it is impossible to get the wrench on at right angles to the end of the bolt; a spark plug socket; a drilling attachment which takes a standard square shank drill from ⅛ of an inch to ½ inch diameter, and a screw driver with reversible ends, together with several adjustments to go with the drilling attachment.

Manufactured by the L. S. Starrett Co., Athol, Mass. Price complete, $15. Without drill fixtures, $12.



COOKE IS NEW DENBY ADVERTISING MANAGER.

Frank S. Cooke, the new advertising manager of the Denby Motor Truck Co., Detroit, was for years automotive editor of the Detroit Free Press. His career as a newspaper man in Detroit covers the full period of the development of motor vehicles in that city, during which he has been intimate with every step.

Frank S. Cooke, New Advertising Manager of Denby Motor Truck Co.

Meanwhile he has written intelligently about harness horses, gaining fame in this specialty and being known wherever trotting is a favorite sport. Few men have been able to make a team out of a motor vehicle and a horse, but Cooke has driven them a winning race without punctures or spavins.

From the start of the specialized manufacture of motor trucks Mr. Cooke has been a student of the problems of transportation.

WANT THEFT A FELONY IN ARKANSAS.

The legislative committee of the Automobile Dealers' Association of Little Rock, Ark., has framed a law that would make it a felony to borrow, move or use for any purpose whatever a car or truck without the owner's consent. The bill will be presented to the Arkansas Legislature at the present session. A penalty of from one to five years' imprisonment is proposed for violation. Provisions are also made for the punishment of persons attempting to cover up the theft of accessories.

"KISSELGRAPH" IS NEW KISSEL HOUSE ORGAN.

"The Kisselgraph" is the name of the new house organ of the Kissel Motor Car Co., Hartford, Wis. The company had issued a weekly paper for its employees in the military and naval service, and this is now converted into a house organ for the dealer organiization.

AMERICAN EXHIBITS AT FIRST POST-WAR FAIR IN FRANCE.

The Goodrich and Overland companies are among the American firms that will have exhibits at the first post-war automobile show in Europe. The show will be a portion of the Lyons Sample Fair, Lyons, France, and will be opened in the Silk City, March 1. A special building has been erected on the fair grounds to take care of the automobile manufacturers.

The French manufacturers' associations are encouraging participation of automobile manufacturers. In 1918 there were 3182 exhibitors at the Lyons Fair, and the amount of business transacted was $15,000,000. The fair this year will be the biggest ever, it is expected.

European automobile manufacturers who will have cars on exhibit comprise the following: Berliet, Blum, La Buire, Chiribibi, Cottin & Desgouttes, Delage, Delahaye, D. F. P., F. I. A. T., Hotchkiss, Panhard-Levassor, Rochet-Schneider, Th. Schneider, Turcat-Mery, Unic, Lorraine-Dietrich, De Dion Bouton, Peugeot, Rolland-Pilain, Vinot & Deguingand. In addition a large number of tire and accessory firms have booked space, among them being Bergougnan, Nilmelior Magneto Co., S. E. V. Magneto Co., Zenith Carburetor Co., Dunlop Tire Co., Lavalette Magneto Co. and Oleo Spark Plug Co.

HIGHWAYS TRANSPORT NEED IS GOOD ROADS.

The motor truck is responsible for the present agitation in favor of good roads, says Clifford A. Williams, director of sales of the Kissel Motor Car Co. "We had it proven to us," says Mr. Williams, "that if the United States had been as well supplied with improved highways as France we could have transported twice the amount of goods and supplies at a much lower cost.

"With resolutions now before the Good Roads Association, highways state commissions, and eventually before the United States Congress at its next session, calling for hundreds of millions of dollars to be expended in road building and highway improvements, the year 1919 will undoubtedly see the greatest amount of work of this kind in the history of the country.

"The people of the United States have had it brought forcibly to them, first—the chaotic condition of the nation's transportation facilities, and, second—what a necessary utility the motor truck has become."

FINKENSTADT RETURNS TO STANDARD PARTS CO.

Capt. E. R. Finkenstadt has returned to the Standard Parts Co., Cleveland, O., after completing his duties as assistant chief of the truck section of the Motor Vehicle Division, Quartermaster Department, at Washington. He was for many months chief of the production of the class B truck, officially known as the Liberty truck.

PACKARD COMPANY PLANS FOR NATIONAL BUSINESS.

The Packard Motor Car Co. has founded an organization to serve particularly the transportation requirements of what is generally known as national business. The men selected to shape this service to truck users of national character are Packard men of wide experience in the field of motor transportation. They are A. C. Harrington, who for the last year has been vice president of the distribution for the Packard Motor Car Co. of New York, and F. H. Pietsch, manager of the truck distribution for the Packard Motor Car Co. of Chicago.

Mr. Harrington, with headquarters in New York, will have as his territory the eastern section of the United States. He has already associated with him in his organization James T. Adams, until recently manager of the Washington office, through which the Packard company served the motor transport need of the government during the war.

Mr. Pietsch, with headquarters in Chicago, will have as his territory the western section of the country east of the Rocky mountains. The home offices of the majority of companies doing a national business are in New York and Chicago.

JACKSON GOES TO AUTO BODY CO. AS GENERAL MANAGER.

W. V. C. Jackson, who for the last two years has been vice president of the Briscoe Motor Corporation, Jackson, Mich., has become vice president and general manager of the Auto Body Co., Lansing, Mich.

Mr. Jackson has been connected with the automobile industry since 1910. He was first associated with the Metal Products Co. of Detroit and then went with the A. O. Smith Co. of Milwaukee for five years prior to coming to the Briscoe company. He brings a well rounded and thorough manufacturing experience to the Auto Body Co.

W. V. C. Jackson, Vice President and General Manager Auto Body Co.

Time to Re-tire?
(Buy Fisk)

FISK TIRES

for passenger cars, small commercial cars and heavy trucks

THERE are good reasons why every dealer should learn all about Fisk tires and the Fisk way of doing business.

THROUGHOUT THE UNITED STATES and in foreign countries the Fisk trademark is established. It stands in the minds of dealers and tire users for quality, for endurance and for fair dealing.

THE LINE OF FISK TIRES is complete. It includes fabric and cord pneumatics, plain and Non-Skid treads, in all standard sizes, for passenger and small commercial cars, with solid tires and big pneumatics in sizes and styles required by all heavy trucks.

THE FISK RUBBER COMPANY works in co-operation with its dealers. It cultivates and maintains a close relation with and a personal interest in dealers in small towns and succeeds in bringing to them the complete service which is available in the bigger cities.

THE FISK POLICY and the Fisk Line aid a man to maintain his present business at a maximum volume and they also enable him to develop in new directions.

It is especially advisable that dealers make their 1919 connections early. It will be to your advantage to get full information about Fisk tires and the Fisk Selling Policy.

THE FISK RUBBER COMPANY
OF N. Y.

General Offices Chicopee Falls, Mass.

ASK YOUR JOBBER

For Your Battery Shop Supplies

Your jobber is in business for *your* benefit. While he makes a small profit on the goods he sells you he saves you far more in time, worry and money. He hunts out and purchases the very best in every line—and keeps it ready to deliver to you on your order. You never need to search the country over for supplies or repair parts—if you depend on your jobber.

As all new devices and wares must satisfy his rigid tests before he offers them to you, all your purchases from him bear his endorsement as well as that of the maker.

AMBU CADMIUM TEST OUTFIT. To test both sets of plates in the storage battery without taking it down. This is proving one of the greatest labor-savers, time-savers and battery-savers ever offered to the repair men. Consists of specially calibrated and voltmeter with the indicated correct readings shown on the dial in red, a pair of rubber-tipped cadmium leads to reach the different plates.

Outfit complete **$25.00**

Voltmeter only, **$22.50**

Cadmium leads only, **$3.25.**

AMBU BATTERY STEAMER. Softens compound in battery in 15 minutes without danger of injury to jar or connections. Needs no attention. Works while you are busy. Price complete, **$25.00.**

VOLTS
NEG. DISCHARGED
POS. DISCHARGED
AMERICAN
POS. CHARGED
AMBU

AMBU BATTERY PLATE PRESS. To press and straighten plates. One of the most valuable "salvage" devices in any shop. **$32.50.**

AMBU PLATE BURNING RACK. To hold battery plates in position while burning in new ones. Great time saver. **$7.50.**

AMBU LEAD MOLDS. For molding into convenient, usuable form lead scrap and trimmings. Most shops need several. Each, **$1.75, pair $3.25.**

AMBU WIRING DIAGRAMS. All the 1917 and 1918 cars electrical systems diagrammed. **Book of over 180 for $3.50;** single sheet diagrams of older models—**25 cents each.**

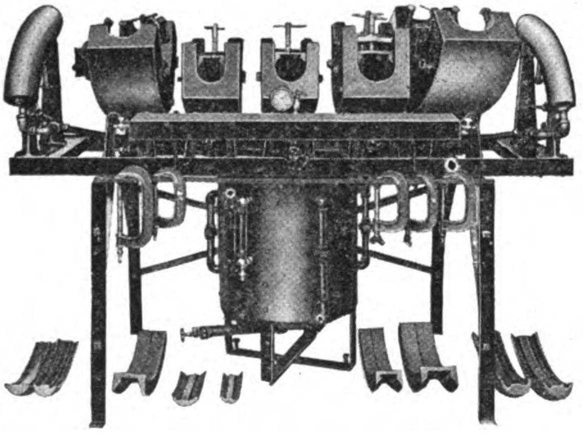
"AUTO" STORAGE BATTERY. A book that tells, in simple language, all about the care and repair of storage batteries. **$5.00.**

Your Jobber Should Have These In Stock,
If He Cannot Supply You, Write Direct to

American Bureau of Engineering, **1032 S. Wabash Ave., CHICAGO**

REPAIR HUNDREDS OF TIRES A YEAR AND MAKE BIG MONEY.

Every tire on every car requires repairing over and over again. YOU OPEN A TIRE REPAIRING SHOP and get this business. Great profits Vanderpool Vulcanizer (5 Cavity) turns out $100 worth of work a day.



THE VANDERPOOL VULCANIZER

Repairs tires upon correct principle exactly as used by the big tire factories. Vanderpool work stands up better and longer. We send you same outfit now used by veteran repair men. Write for free TIRE REPAIRING MANUAL—tells how tires are repaired.

In answering address Dept. 86.

THE WM. VANDERPOOL CO., Springfield, Ohio.

Guaranteed Bearings

We Exchange Rebuilt Bearings for old or worn ones **BILODEAU** BALL BEARINGS WORKS

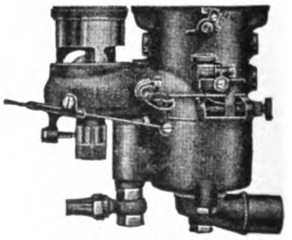
ECONOMY *Plus* EFFICIENCY

These words mean great strength toward winning the war. They form our policy—and by the standard of that policy we are continually schooling garage men and repair men to avail themselves of our exceptional service of Rebuilding Worn Bearings.

Bilodeau Rebuilds All Makes of Worn Bearings, to Run as True as When New.

Write at once for catalog, listing types, sizes and prices of standard designs. Trade discounts confidential.

BILODEAU BALL BEARING WORKS
66 Stanhope Street, BOSTON, MASS.



YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

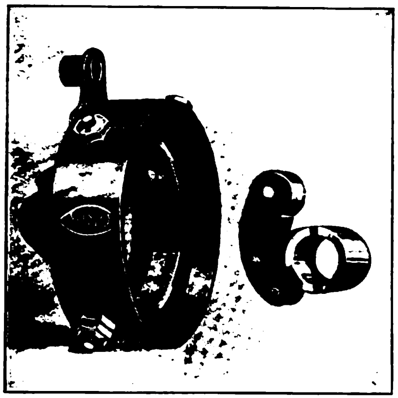
More Mileage—More Power—More Speed

Get him to try it for 15 days. Satisfaction guaranteed.

WEBBER MANUFACTURING COMPANY

Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway

This Is the Timer You Want



CUNO
Timers
Give
Satisfaction

A high class, well built instrument. Can be attached to any Model T Ford Car without change. Built to resist wear. Indestructible light steel case—handsomely black enameled.

Improved roller arm assembly. Roller and pin of special steel, hardened. Extra quality fibre ring. Constant lubrication.

Dealers, write for proposition.

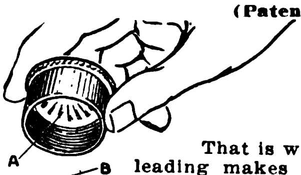
Gives Real Service TRADE CUNO MARK **Price $1.50**

The Cuno Engineering Corp.
Meriden, Conn., U. S. A

A Rachet Top GREASE CUP *That Will not Work Loose*

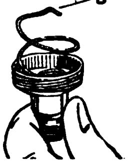
M. & E. GREASE CUP

(Patented)



The M. & E. Ratchet Locked Top Grease Cup will continue to lubricate all parts as long as there is grease in it.

That is why all Packard and other leading makes of trucks are M. & E. Grease Cup equipped.



At the end of the spring marked "B" in the sketch is shown the pawl. At "A" the notches in the top of the cup. When the top is turned the pawl slips from notch to notch. The top is always locked and cannot rattle off.

M. & E. Grease Cups save, serve and protect.

Evans Model "Hele-Shaw" Clutches ***Evans Alignment Joints M. &E. Universal Joints***

The British Government approved the American made F. W. D. trucks. The U. S. Government did the same. All F. W. D. trucks were equipped with Evans Model "Hele-Shaw" Clutch and Evans Alignment Joints.

Dependable service was the factor. F. W. D. trucks met the test.

Write Department 1 *for facts, trade prices and discounts.*

MERCHANT & EVANS Co
PHILADELPHIA
NEW YORK, WHEELING, BALTIMORE, CHICAGO, ATLANTA, ST. LOUIS, CLEVELAND, KANSAS CITY

Service Stations & Garagemen

Big worth-while profits with astonishing increase of trade

immediately follows your taking on

NEW YORK REPLACEMENT IGNITION COILS

NEW YORK COIL CO
NEW YORK, U.S.A.

95% of all cars are coil equipped—every one a prospect. No large investment necessary. A few dollars will start you because a small quantity of different model coils fit ALL CARS.

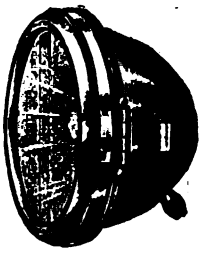
Fifteen years coil building experience enables us to produce a coil that gives a crashing big hot spark—even when battery is low—that insures easy starting and perfect running on present day low grade gas.

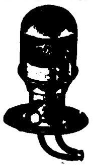
They are guaranteed for the life of the car. Don't let your competitor get the nicest piece of business ever offered **but write today for trade prices** and circular giving list of proper coil for each model car.

NEW YORK COIL CO.
338 Pearl Street New York, N. Y.

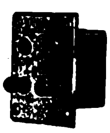
Mid West Distributors—GRAY HEATH CO.
1440 Michigan Avenue Chicago, Ill.

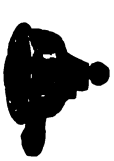
AMPERES
ROSCO

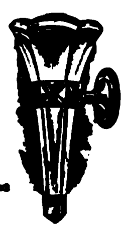




ROSCO
TRADE MARK







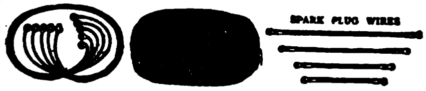
A FEW OF OUR NUMBERS

Write for

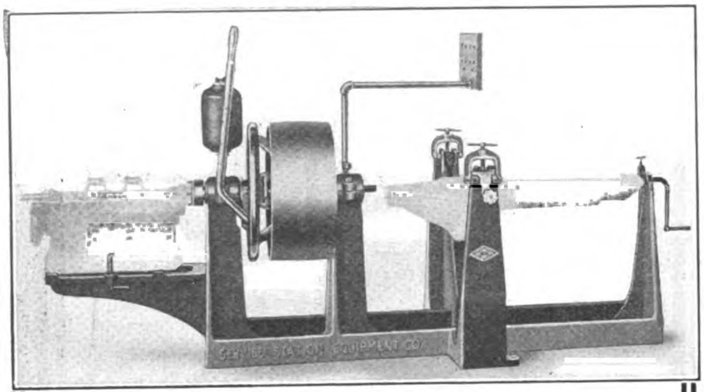
CATALOG

illustrating our Complete Line

It Will Pay You



A. W. ROSEN & CO.
MANUFACTURERS
610-614 Broadway New York



The American "Junior" Combination Bearing Burning-in and Motor Test and Running-in Stand

WITHIN THE REACH OF EVERY FORD DEALER AND REPAIR MAN

The **American Junior** is constructed so that the bearings of the Ford Block are exposed to the view of the operator while being burnt-in.

The burning-in Base is constructed with openings large enough so that the Pistons and Connecting Rods can be installed or fitted without removing the Block from the machine. The Block is held in position with quick acting clamps set in guides.

The **American Junior** is constructed along the solid unit principle, no bolts or rivets are used in the frame. This eliminates vibration and also the danger of the frame shaking loose from constant use.

The Motor Test part of the machine can be operated independently or at the same time that the bearings are burned in. This machine has the quick adjusting alignment device on right hand motor support for aligning the Universal Joint quickly and accurate. The clutch is also equipped with a tryout wheel so that the stiffness of the motor and bearings can be determined without removing either unit from the machine.

The **American Junior** comes completely equipped with gasoline tank inlet and outlet water connections, and coil support as shown in illustration.

Price $197.50

We manufacture a full line of equipment for Ford and Fordson Service Stations. Write for Catalogue.

All equipment manufactured by this company is approved by the equipment department of the Ford Motor Company before it is placed on the market.

SERVICE STATION EQUIPMENT COMPANY, Inc.
MANUFACTURERS
1201-1211 Cortland Street Chicago, Ill.

VARNOLA CLEANER
VARNOLA POLISH

CLEANER POLISH

Varnola

RENEW CAR FINISH PERFECTLY

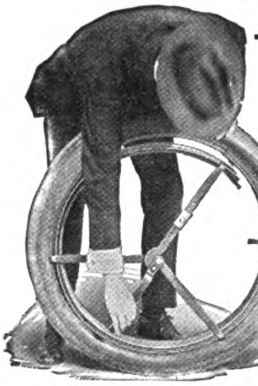
THEY restore varnish and enamel, on wood and metal, to the original appearance. The Cleaner removes grease, dirt or corrosion from the surfaces and the Polish gives a high lustre that will endure from 30 to 60 days.

A pint can of the Cleaner and a quart can of the Polish will suffice for any size or type of car for six months. The price for the two, sold only in combination, is $1.50

JOBBERS AND DEALERS

You know the reasons why other automobile cleaners and polishes do not satisfy. Varnola products are sold with a guarantee of satisfaction. The demand is constantly growing. The sales probabilities are extremely large. Our trade discounts are very liberal. Write for them today

American Manfg. & Supply Company
BOSTON 9 WILTON STREET (Allston District) MASS



REMOVE *ANY* RIM
with the
"Lawco" Rim Tool
(Patents Pending)

Do in a minute what now takes an hour without injury to rim, tire, or valve stem. Use the "Lawco" Rim Tool. Closes compactly. Weighs 5½ pounds. Only $3.50.

Dealers write for proposition

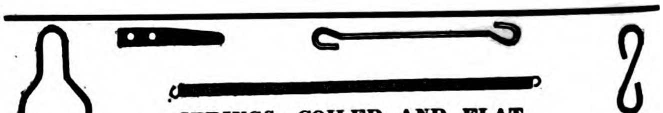
Dept. G. THE F. H. LAWSON CO., Cincinnati, Ohio

The MANLEY GARAGE AND SHOP EQUIPMENT

Every garageman and repairman should get our catalog. You'll find in it just the time and labor savers you need, and their prices will astonish you by their moderateness.

Send for your copy of this catalog today

THE UNITED ENGINE & MFG. CO.
Hanover, Pa.



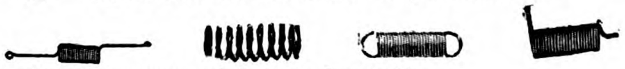
SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

16 lbs. Assorted Springs	**$2.00**
25 lbs. Assorted Cotters	**5.00**

Subject to Market Changes.
Send for Catalogue.

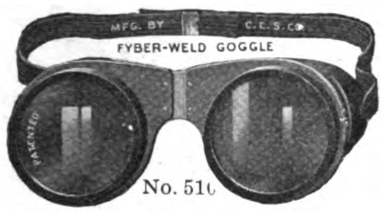
PLUG READY TO EXPAND
SPECIAL POINTS (FOR QUICK ASSEMBLY)

Welch Patent Expansion Plug.
For Closing Core Holes.
M. K. HUBBARD SPRING CO., Pontiac, Mich.



Fyber-Weld GOGGLES for Welders

Fitted with "Essentialite" Lenses



Frame is made entirely of vulcanized fibre, and in addition to being light in weight is a non-conductor of heat and electricity, is non-inflammable and infusible, is not affected by moisture or perspiration and is easily sterilized and kept sanitary. Has flexible leather center, ventilated side pieces and adjustable elastic headband.

Prices as follows:

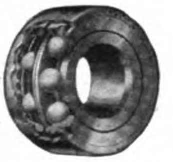
No. 510, fitted Ess. lenses, No. 4 shade, for cutting and cover glasses......$3.00 pair
No. 510, fitted Ess. lenses, No. 6 shade, for welding and cover glasses......$3.00 pair
No. 510, fitted with amber, smoked green or deep blue, cesco blue and cover glasses......$2.50 pair
Extra cover glasses in clear or amber tint...... .20 pair

"ESSENTIALITE" LENSES

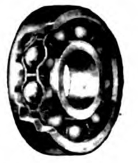
To those of our patrons who are not thoroughly conversant with the real qualities and benefits of "Essentialite" lenses, we take pleasure in furnishing the following information. In placing the "Essentialite" before the trade, we have, after years of experimenting and research, succeeded in discovering the means of protecting the delicate organism of sight against the destructive Ultra Violet rays. We have demonstrated conclusively that with these lenses we vanquish the so-called "fatigue-weariness" and headaches caused by Ultra Violet and Infra Red rays.

Manufactured By **CHICAGO EYE-SHIELD CO., 2300 Warren Ave., Chicago, ILL.**

NEW DEPARTURE BALL BEARINGS

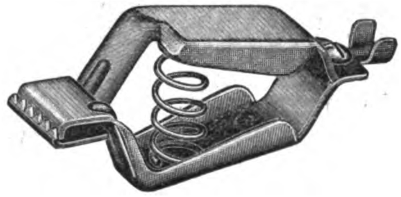


Strength
Stamina
Service



The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

UNIVERSAL BATTERY CLIPS



Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals.

No. 21-A—lead plated—1⅛" spread of jaws.

Sample mailed postpaid for 15c in stamps.

Single Lots, Each 20c. Lots of 10, Each 15c.
Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.

ADAMSON

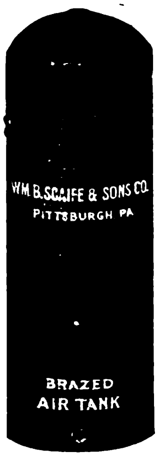
VULCANIZERS

The Only Complete Line

MODEL "E" 5-Minute Vulcanizer repairs tube punctures—Price $1.00 complete.
MODEL "U" repairs tread cuts and abrasions, mends inner tubes—Price $2.00 complete.
MODEL "T" makes ordinary tube repairs—Price complete $1.50.
MODEL "S" for garage use, makes tube repairs up to 12 inches—Price complete $12.00.

Sold by Jobbers and Dealers Everywhere.

ADAMSON MFG. CO., - - - East Palestine, O.



SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

CYLINDER HEAD GASKETS *for* all Makes of Cars

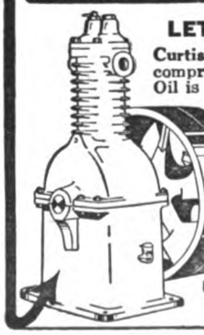
Immediate deliveries from BOSTON STOCK

MITCHELL & SMITH INC.
1090-1092 COMMONWEALTH AVE. BOSTON, MASS

CURTIS AIR FREE FROM OIL

MOTORISTS *Have* CONFIDENCE IN THIS SIGN

LET THEM FIND IT AT *YOUR* DOOR.



Curtis Air means more mileage, because **Curtis** is the only air compressor that can't flood cylinder with more oil than it can use. Oil is the enemy of rubber. It rots tires, causing blow-outs.

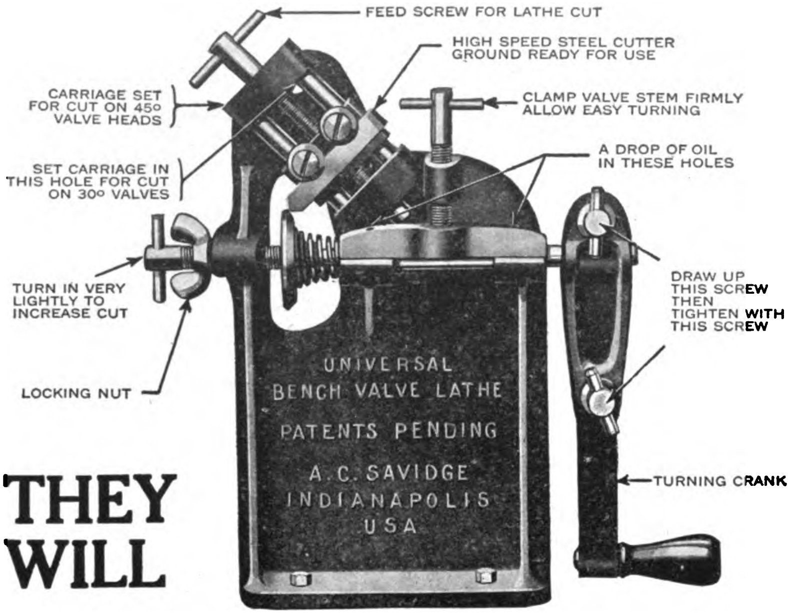
A Curtis Compressor Is Dependable

requires practically no attention, costs very little, quickly pays for itself, always delivers the kind of cool, clean air that makes tires last longer.

5 sizes and 125 combinations. Write for full particulars and let us tell you why the **Curtis** will prove to be your best investment. Ask your jobber for prices—but be sure and mention **Curtis**—the name is your protection against substitution

CURTIS PNEUMATIC MACH. CO. 1621A Kienlen Ave. St. Louis, Mo.
Branch Office: 531A Hudson Terminal, New York

UNIVERSAL BENCH VALVE LATHE


FEED SCREW FOR LATHE CUT
HIGH SPEED STEEL CUTTER GROUND READY FOR USE
CARRIAGE SET FOR CUT ON 45° VALVE HEADS
CLAMP VALVE STEM FIRMLY ALLOW EASY TURNING
SET CARRIAGE IN THIS HOLE FOR CUT ON 30° VALVES
A DROP OF OIL IN THESE HOLES
TURN IN VERY LIGHTLY TO INCREASE CUT
DRAW UP THIS SCREW THEN TIGHTEN WITH THIS SCREW
LOCKING NUT
UNIVERSAL BENCH VALVE LATHE PATENTS PENDING A. C. SAVIDGE INDIANAPOLIS USA
TURNING CRANK

JUNIOR VALVE LATHE PATENTS PENDING A G SAVIDGE INDIANAPOLIS

THESE ARE

Simple, rugged and accurate valve lathes that ***anyone can use*** quickly and efficiently because they are self centering and the angles are accurately fixed.

Better than a machine lathe as they are specially designed to true valve heads and to true them ***right.***

THEY WILL

Save valve grinding and assure a perfect concentric fit.

Eliminate those carbon ridges, save gasoline, assure an easy starting and sweet running engine, ***make a lasting job*** that you know is right. Save your old valves, they are often better than new ones if properly trued.

Equipped with high speed steel cutter ready for use,—and
ABSOLUTELY GUARANTEED

Write for folder giving full description
and valuable information.

A. S. SAVIDGE, No. 3 Williams Building, Indianapolis, U. S. A.

DIXON'S = MORE MILEAGE AND POWER WITH LESS UPKEEP
DIXON'S GRAPHITE GREASE No. 677 FOR TRANSMISSIONS AND DIFFERENTIALS

Dixon's Solve the Lubrication Problem

for you and your customers. Increased mileage and power-decreased upkeep. That's what makes motorists Dixon-disciples. And makes friends for the far-sighted dealers who sell

DIXON'S
GRAPHITE
Automobile
LUBRICANTS

"THE GRAPHITE IS THE REASON"

Dixonizing puts a wear-resisting film of selected flake graphite over the metal surfaces. Service-giving lubricants mark the service-giving garage or supply house.

Write for our Interesting DIXON'S DEALER'S DEAL No. 49-G

Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

ESTABLISHED 1827

King Safety Tail Light takes the fear out of night driving—

Equip your car with one NOW

For particulars write

KING-BULL MFG. CO.

123 E. Ontario St.
Chicago.

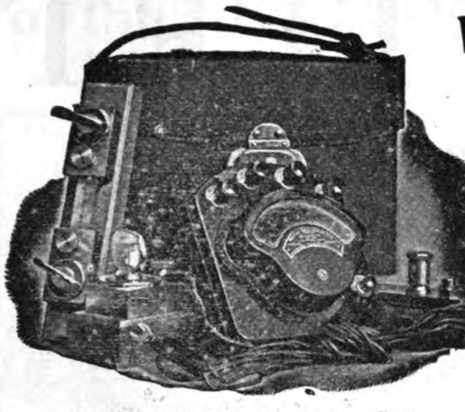
TRACTOR WORLD

Monthly 20c the Copy $2 the Year

A Tractor Journal devoted to the tractor industry and trade

Published by

The Automobile Journal Publishing Company
PAWTUCKET, RHODE ISLAND



Branch Offices in the Larger Cities

Will Somebody Else Get Your Share?

If you can repair and adjust Electrical Equipment you will get the cream of the garage business and make more money. With the increasing demand for this sort of service you must equip to handle the business or lose it to your more enterprising neighbor.

Weston

Model 280

GARAGE TESTING INSTRUMENT

is the best, the most reliable, and therefore the cheapest electrical equipment for you. It enables you to determine promptly and accurately the condition of the electrical equipment of any automobile, just where the trouble is, and just how to remedy it. Write for our **Special Proposition.**

WESTON ELECTRICAL INSTRUMENT CO., 103 Weston Ave., Newark, N. J.

AUGLAIZE HOIST

LABOR SAVING

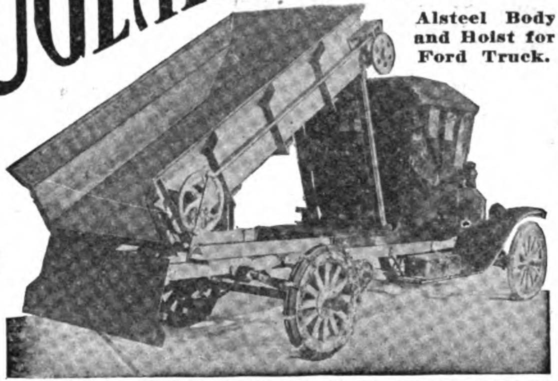
The Quadruple Worm Gear Easily Turns the Trick

A boy can raise 4 tons in three minutes with the Auglaize Hoist. Weighs less than any other and covered with a liberal guarantee. Built in sizes up to 5 tons. **Prices up to 1½ tons, $83.00; from 1½ to 5 tons, $109.00.**

AUGLAIZE ALSTEEL BODIES

Staunchly constructed of all steel and guaranteed against defective material and workmanship. Will carry 50% overload.

Prices range from $150.00 to $225.00, according to size.



Alsteel Body and Hoist for Ford Truck.

TIME SAVING

Auglaize Special Alsteel Body and Hoist for Ford Truck

Carrying capacity from 2700 to 3000 lbs. of gravel, sand, crushed stone or coal; approximate weight, 550 lbs.

Price, $187.50. Equipped with Auglaize Powerful, Speedy, Light-Weight Hoist.

Dealers allowed a liberal commission and given selling cooperation. Write at once for catalog and sales plans.

THE AUGLAIZE MOTOR CAR CO.

New Bremen - - - Ohio.

FREE AIR COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Automatic Inflating Valve

to your air hose.

Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve.

Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.50 in U. S. A.

W. S. S.

We	Suggest	Stamps
War	Savings	Stamps
Without	Shells	Soldiers
Would	Soon	Succumb
War	Savings	Stamps
Will	Supply	Soldiers
With	Shells	

Buy all you can and help to win the war.

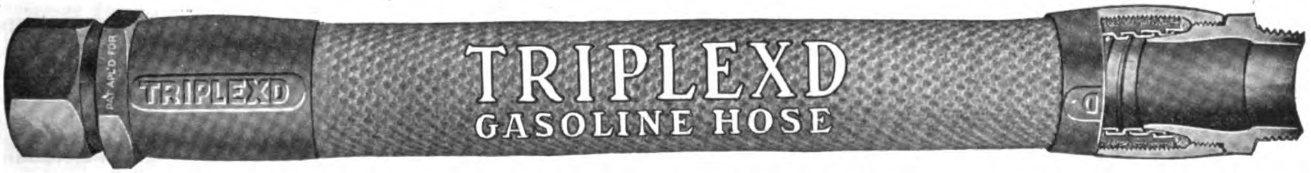
Manufactured by **A. SCHRADER'S SON, Inc.**

800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted wholly to owners of pleasure cars.



METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

227 Tillaxy Street. **Write for Our New Circular.**

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

TRADE OUTLET

PACKARD TOURING BODY

Brand New

Late model—complete with top, windshield and fully painted Packard blue with gold stripes.
Factory price, $900. Our price....**$350**

RADIATORS AND HOOD COVERS

Protect your cooling system. Cover your Radiator and Hood. We make covers for any car to order. We have a lot of miscellaneous covers which are priced right. Get one of these for your car, or let us make you one to order.

ELECTRICAL REPAIRS

Starter — Generator — Magneto — Coil — Batteries — Light Wiring. Anything electrical on your cars. We are especially well equipped for this work. We carry a very complete stock of electrical repair parts. We have stock of Ward Leonard Lighting Generators, $15. 6 volt Ward Leonard starting motors complete with Bendi drive, $15. 6 volt Menominee Lighting Generators for Fords with attaching brushes, $15.

RADIATORS FOR ANY CAR

Brand new honeycomb Radiators for every make of car. Special prices for Overland, Maxwell, Buicks, Dodges, Chevrolets.

Puritan Machine Company

21 Puritan Building.
10th and Lafayette Boulevard,
Detroit, Mich.

Eastern branch, 245 West 55th Street,
New York City.

Wilkins&Hovey Co.

35 Albany St.
Cambridge, Mass.

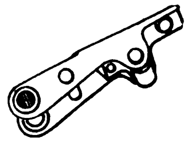
WELDING

GOOD WORK
PROMPT SERVICE

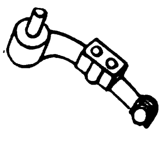
Send us your broken cylinders, frames and machine parts.

Scored cylinders filled and fitted.

Telephone Camb. 4830.



Superior Parts and Brushes



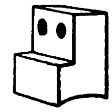
FOR ALL

Ignition and Starting Lighting Systems

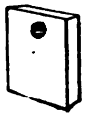
Used for Years by the Best Repair
Shops Everywhere

"They Last Longer but Cost Less"

Write for Catalogue



Specialty Manufacturing Co.



637 Massachusetts Ave., Arlington, Mass.

Send it to Detroit

MAGNETOS.

Bosch DU4 Variable spark	$30.00
Bosch DU-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cyl. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	10.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hours service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange
192 Grand River Ave. Detroit, Mich.

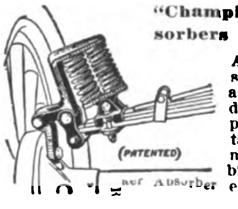
3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.
Solidly Vulcanized by Factory Process.
Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. **40 Mathewson St., Providence, R. I.**
Phone Union 4179-R.



"Champion" Shock Absorbers for Ford Cars.

A new spring suspension which absorbs jar and rebound. A wonderful E-Z ride suspension. (E-Z to attach.) Guaranteed by mfrs. Exclusive sales; big profit; agents, owners, dealers. Dept. H.

Champion Shock Absorber Sales Co., Inc., Indianapolis, Ind., Mfrs.

Westchester Accessories Co.

Inc.

1777 Broadway, New York City.

PISTON RINGS.

All automobile sizes in stock.

Plain and Inland Parts.

BRAKE LINING.

Complete stock of Thermoid and Raybestos-woven.

We can offer big price incentive to immediate replies.

AUTO PARTS.

50% to 90% Off List.

24 Hour Service. Unlimited Stock.

Pope-Hartford, Columbia, Reo, Overland and 200 other makes.

Motors,	**$20.00 up**	E. Presto Tanks,	**$4.06**
Magnetos,	**$3.50 up**	B. Presto Tanks,	**$4.75**
Cylinders,	**$3.00 up**	Bearings,	**50c up**
Springs,	**$1 00 up**	Rims,	**$1.00 up**

1000 Other PARTS Bargains.

If you want any part not listed here,

Write Us—We Have It.

Conn. Auto Par s Co. Inc.

1070 Main St, Hartford, Conn.

Lozier Owners

Why Buy
Counterfit Repair Parts
We Have All

Original Parts

Made from Original Patterns.
Order from Headquarters.

LOZIER MOTOR CO.

Fort and 6th Sts., Detroit, Mich.

PRINTING.

250 Business Cards neatly printed and prepaid for $1. Stationary and commercial printing. Write your other wants.
CHARLES LEHMANN.
836 Blue Island Ave., Chicago, Ill.

EXPERT REPAIRING; every known Magneto and Ignition System, Starters, Motors, Generators. **Magneto Exchange and Repair Shop, 269 Halsey Street, Newark, N. J.**

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

For the TIRE SHOP, GARAGE or REPAIR SHOP

PAT'D APRIL 9TH 1918
OTHER PATS PENDING

Heintz Automatic Electric Steam Vulcanizer

A wonder worker and constant profit producer. This equipment is guaranteed to be right for any shop and the business is waiting for those who can do the work. Heintz distinct features are—

1. No danger of fire or explosion. 2. It does perfect work. 3. Vulcanizes by steam heat. 4. Heated by electricity from light socket. 5. Steam pressure and temperature automatically controlled. No attention required. 6. No boiler or fireman needed. No watching of steam pressure. Made in two sizes.

It consumes less electricity than an electric flat iron. Capacity larger than you will probably ever require.
The Heintz is a practical guaranteed vulcanizer, which has always proved a big money maker for all who use it.

Write Us for Prices and Description Now.

JAS. C. HEINTZ & CO., 2067 East 9th Street, Cleveland, Ohio
Exclusive Licensees Under Heintz Patents.

JOBBERS, Write for our Proposition. **CANADIAN DISTRIBUTORS:** Canadian Fairbanks-Morse Co., Montreal, Canada.

TRADE OUTLET

STANDARD SCREWS AND NUTS

Manufacturers of

SPECIAL SCREW MACHINE PRODUCTS

NEW HAVEN SCREW CO.
191-193 Foster St., New Haven, Conn.

TRUCK OWNERS

What arrangements have you made to protect your Trucks against skids next Winter. It is a long way off, but so is the material.

NATHAN E. PACKARD,
221 Warren Ave., Brockton, Mass.

OUR DOUBLE TREAD TIRES

are saving money for our customers all over the country. They can do as much for you. Write for catalogue and price list immediately and see the offer we are making you.

M. Liben & Co.
265-J W. 48th Street, NEW YORK CITY.

W. J. POLSON'S ELECTRIC CURED BY ELECTRICITY

Tube Patch.
Best Rubber. Better Cured.
Dealers' Net Prices.
50c size, $3.50 dozen. $1 size, $7 dozen. Terms—Parcel Post or express prepaid to any place in United States. 5% off for cash with your order. 30 days' terms if you are well rated.
Some good salesmen wanted.
W. J. POLSON, Kansas City, Mo.

Wanted

3 High Grade Truck Salesmen

SALARY OR COMMISSION.

Headquarters to be in Philadelphia, Chicago, Kansas City. Able men only need apply. State age and experience. All correspondence confidential. This concern is one of the best known in the industry, with large output of quality vehicles and enjoys a national market.

Box 11—Motor Truck
Pawtucket, R. I.

Seamless Steel Tubing
PROMPT SHIPMENTS GUARANTEED FROM STOCK OR MILL.
MURCOTT STEEL PRODUCTS CO.
253 Broadway, New York City

AUTO SAVE 50-90% FOR 400 CARS **PARTS**

POPE, PACKARDS, PIERCE, BUICK, STEVENS-DURYEA, KNOX, OVERLAND, ETC.

Motors	$25.00 up	Presto Tanks	$ 4.50 up
Magnetos	4.00 "	New Spotlights	2.00 "
Carburetors	3.00 "	Generators	10.00 "
Rear Axles	15.00 "	Gears	1.00 "
Front Axles	5.00 "	Bearings	1.00 "
Cylinders	5.00 "	Radiators	10.00 "

$12 Diamond Bumpers............$5.50

Jobbers in Bankrupt Auto Supplies.

BRIGHTMAN AUTO EXCHANGE
84 Wooster St., Hartford, Conn.

Classified Advertising
BRINGS BIG RETURNS
20 Cents a Line, Seven Words to Line.

Dealers Save Money On OIL

Have just received a carload and must be sold quickly.

WRITE FOR MY PRICES.

It Is the Famous VACUUM Mobiloil.

Nathan E. Packard
221 Warren Ave. Brockton, Mass.

REPAIR PARTS
For
Magnetos, Coils, Starter and Generator Systems, Brushes, Platinum Rivets.

H. & L. MFG. CO.
300 West Broadway New York

The Little Salesman for RELIABLE SERVICE & QUALITY

BUY YOUR AUTOMOBILE & TRUCK SUPPLIES *from*

The Little Salesman

of The New England Mills Co.

THESE ARE OUR REFERENCES!

When your banker hands you a certified check you know it is good. Have this same banker certify our references. Insist on his telling you about our RESPONSIBILITY, who we are, and what our reputation is.

R. G. Dun & Co., Bradstreet & Co., and the National Bank of the Republic, Chicago, will also supply this information in cold facts. You take no risk with the New England Mills Company. We are an institution of CERTIFIED RESPONSIBILITY and reputation.

THIS IS OUR GUARANTEE

We will not only say that the goods will be exactly as represented, but we guarantee them to be exactly as you expect them—you to be the sole judge.

If you are not satisfied with the merchandise, also the saving, we want you to return your purchase. Not only will we refund you your money, but we will reimburse you for all transportation charges that you have paid. This is our binding guarantee of absolute satisfaction.

QUALITY

Standard merchandise at low prices—and you to be the judge.

SERVICE

This department is in charge of expert men who have specialized in this line for years, who will send you the merchandise you order, the kind you expect.

STABILITY

Our guarantee is sound; it is backed by years of established business and by reference to any national bank in Chicago.

THE NEW ENGLAND MILLS CO.
1219-1221 Michigan Ave.,
Dept. A. Chicago

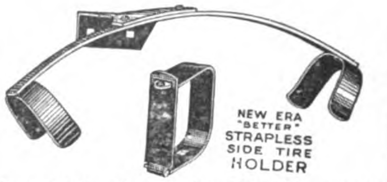
The Little Salesman
A Dealers Catalog of
AUTOMOBILE AND TRUCK SUPPLIES
Prices Good Until January 10th, 1919
Service Today Is Our Policy—In These Strenuous Times Service Is What Counts. It May Cost More But Above All Things Service Is the One Thing In Which We Specialize
"Service Above All Is Our Policy"
The New England Mills Company
1219-21 Michigan Blvd., Chicago, U. S. A.
NEMCo

GET YOUR NAME ON OUR MAILING LIST!

SEND FOR OUR LATEST CATALOG TODAY!

WE SELL WHOLESALE ONLY! WE DO NOT SELL CONSUMERS!

New Era "Better" Strapless Side Tire Holder.


NEW ERA "BETTER" STRAPLESS SIDE TIRE HOLDER

Made of steel, has no cast parts to break and no straps to wear out or be lost. The locking device is a part of the tire holder. Tire easily slips into place and is quickly adjusted. A convenient, light tire carrier that has many exclusive advantages. Self-expanding carrying rim can be furnished extra where demountable rims are not used.

Ask your dealer for the New Era "Better" Strapless side tire holders. Prices $2 to $3.

New Era Spring & Specialty Co.
1177 Hamilton Ave. Grand Rapids, Mich.

Anti-Borax
WELDING FLUX

OUR Brazing and Welding Fluxes for Blacksmith work and Acetylene or Electric Welding of all kinds of metal are considered by all users to be the best on the market. Order Anti-Borax Fluxes and get the best results.

MANUFACTURED BY

Anti-Borax Compound Company
FT. WAYNE, INDIANA.

Perfection Springs

2000 Ford Fronts
200 Maxfer Rear
200 Smith Form A Rear
ALL OTHER MAKES

Immediate Deliveries

Dealers write for prices

Geo. Lawrence, Inc.
Cambria Street, Boston

We Pay Spot Cash for Worn-Out Magneto Points

Old magneto points, and, in fact, all broken or useless platinum, gold or silver accessories, painters' gold-leaf cotton, etc., are worth money to you. Mail them to us and we will send you immediately their highest value in spot cash, and will hold the goods subject to your approval of our price.

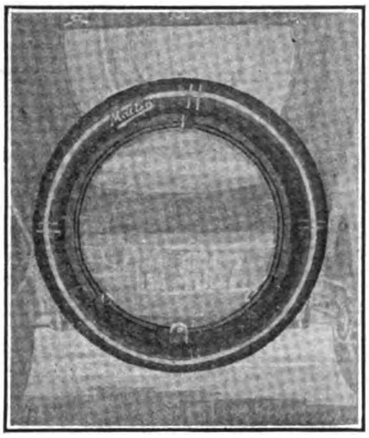
Send us also your dilapidated jewelry, silver-plate, diamonds, watches, anything containing gold, silver or platinum or jewels. We pay prices that make it worth while. Mail them today.

Dun and Bradstreet References

OHIO SMELTING & REFINING CO.
914 Park Building, Cleveland, Ohio

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.
Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts.
The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

Coil Replacement 90% Big Profits

Fully 90% of cars in use are coil equipped. To the enterprising service man, this fact will present a wonderful opportunity for profit on coil replacement business, especially if he is stocked with

JEFFERSON COILS

"The only complete Interchangeable Line of Battery Replacement Coils."

For Jefferson Coils will enable you to give every customer instant service. No big, varied, costly ever-changing stock of coils is required.

Jefferson Coils prepare you for every emergency. A small stock of Jefferson Coils can be adapted to fit all makes and models of battery equipped cars. Flexible caps, terminals and brackets make these coils answer every requirement.

Jefferson Coils are of highest quality; reliable and long lasting. Fully guaranteed.

SEND FOR COIL LIST

showing list of all cars that are Coil-Equipped and the types of Jefferson Coils and Brackets to be used as Replacements.

JEFFERSON ELECTRIC MFG. CO.
429 So. Green St., Chicago

JEFFERSON
Battery Ignition Coils

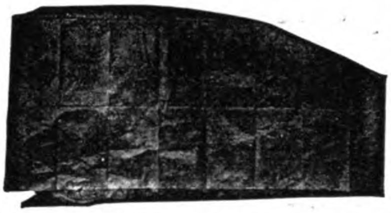
Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

Strengthen Your Advertising Literature

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

Ross-Gould Mailing Lists St. Louis



KENNEDY AUTO STORAGE COVERS

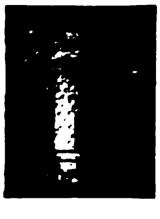
Furnish efficient and economical protection for cars in dead storage. They are made of heavy, durable paper in standard sizes to fit any cars.

MADE ONLY BY

THE KENNEDY CAR LINER & BAG CO.
SHELBYVILLE, IND.

BURKE AUTOMOBILE PRODUCTS

THE BURKE



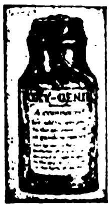
Ox-iliator

Ox-iliator

supplies the gasoline motor with additional oxygen (moisture) needed for complete combustion; consumes carbon; saves fuel; increases motor power. Inexpensive, easily installed.

Oxy-Genii capsules

double efficiency of any air moistener; surcharge water through which air passes with free oxygen. 30 capsules—3 months supply—75 cents. Write for booklets.



Oxy-Genii

AUTOMOBILE DEVICES COMPANY
PHILADELPHIA, U. S. A.

BBB
BUNTING BEARING BRONZE
B.B.B.CO. Nº1

Same quality as our finished bronze bushings and bearings used by manufacturers the country over.

Your repair stock is not complete without it.

All leading jobbers
Ask for catalog N

CORED BARS

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3½
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15½
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20

The Bunting Brass & Bronze Co.

727 SPENCER STREET
TOLEDO, OHIO.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

Conserve Labor

Everyone possesses some degree of energy. That energy expressed is labor. Without labor, the world would suddenly stand still. Production of any kind would be absolutely impossible. Humanity would perish.

Labor is, and will continue to be scarce. Labor is costly. Expenditure of labor through inefficient methods is a waste not only of labor, but of time and money, all of which should be expended more profitably.

BOWSER
Systems

for the storing and handling of oil and gasoline will conserve

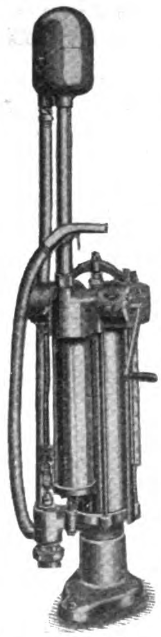


Figure 101, 5-Gal. Pump for Gasoline

70 %

of the labor necessarily expended by less efficient methods.

They also conserve:

TIME
CAPITAL
MACHINERY
SPACE
LIVES
PROPERTY
MATERIAL

BOWSER SYSTEMS are:

Leakproof
Lossproof
Fireproof
Dirtproof
Deterioration proof
Evaporation proof

An inquiry carries no obligation whatever.

Let us help you Conserve Labor

S. F. Bowser & Company, Inc.
FORT WAYNE, INDIANA, U. S. A.

THE ACCESSORY AND GARAGE JOURNAL
INDEX TO ADVERTISERS

	Page
Adamson Mfg. Co	55
Advance Auto Accessories Corp	16b
American Bureau of Engineering, Inc	52
American Mfg. and Supply Co	54
Anti-Borax Compound Co	60
Auglaize Motor Car Co	57
Automobile Devices Co	61
Bilodeau Ball Bearings Works	52
Boston Blacking Co	15
Bowser & Co., Inc., S. F	62
Brightman Auto Exchange	59
Brunner Mfg. Co	4
Bunting Brass & Bronze Co	61
Champion Shock Absorber Sales Co	58
Chicago Eye-Shield Co	55
Connecticut Auto Parts Co., Inc	58
Cooper Auto Supply Co	9
Corps Brothers	58
Cuno Engineering Corp	53
Curtis Pneumatic Machine Co	55
Detroit Magneto Exchange	58
Dixon Crucible Co., Jos	56
Dyer Co., G. H	1
Faw, Inc., J. H	8
Fisk Rubber Co	51
Fitzgerald Mfg. Co	10
Gates Rubber Co	2-3
Gray & Davis, Inc	Cover
Heintz & Co., Jas. C	59
Higgins Spring and Axle Co	64
Hubbard, M. K., Spring Co	54
International Metal Polish Co	12
Jefferson Electric Mfg. Co	61
Jenkins Vulcan Spring Co	13
Kennedy Car Liner and Bag Co	61
King-Bull Mfg. Co	56
Lawrence, Inc., Geo	60
Lawson, F. H., Co	54
Lehmann, Chas	58
Lozier Motor Co	58

INDEX TO ADVERTISERS

(Continued)

Page

Magneto Exchange and Repair Shop 58
Martin Mfg. Co 61
Merchant & Evans Co 53
Metal Hose and Tubing Co 57
Miller, Chas. E 64
Mitchell & Smith, Inc 55
Motor Specialties Co 11
Mueller & Co., R. S 55

New Departure Mfg. Co 55
New England Mills Co 60
New Era Spring and Specialty Co 60
New York Coil Co 53

Ohio Smelting and Refining Co 60

Piston Ring Co 63
Polson, W. J 59
Puritan Machine Co 58

Rich Mfg. Co 64
Rosen, A. W. & Co 53
Ross-Gould List and Letter Co 61

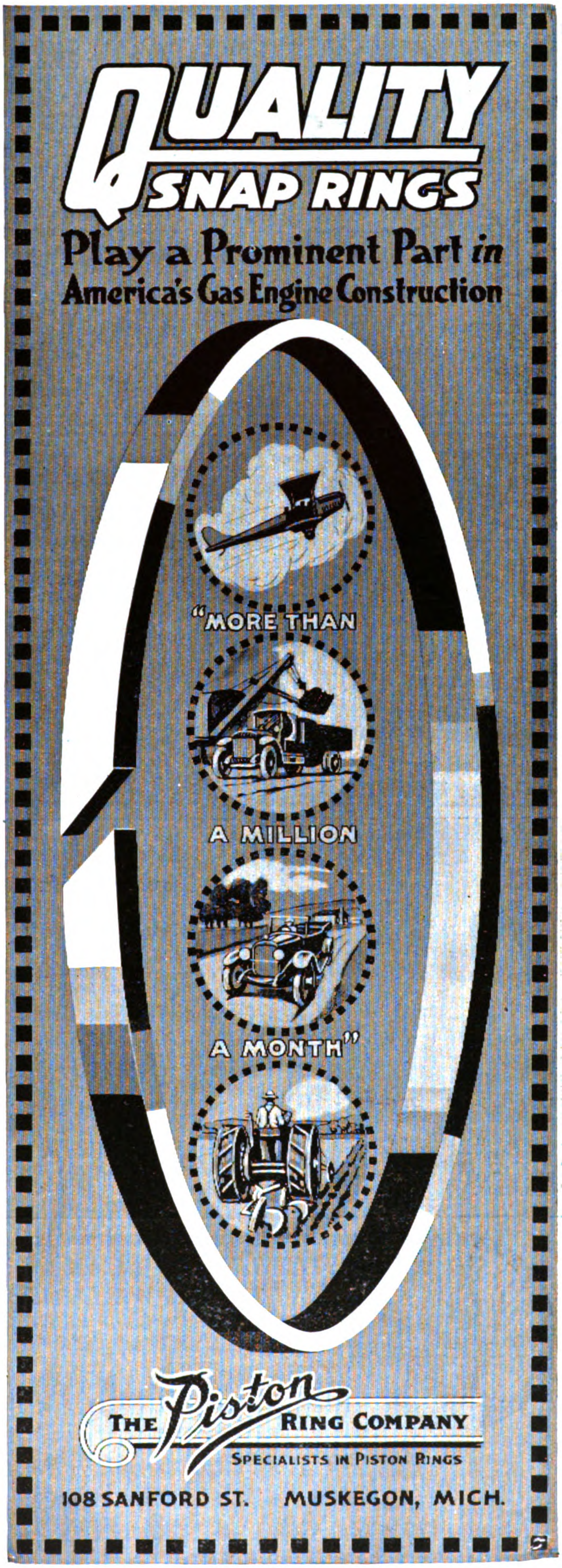
Savidge, A. S 56
Scaife, Wm. B. & Sons Co 55
Schrader's Son, Inc., A 57
Service Station Equipment Co., Inc 54
Shaler Co., C. A 64
Shurnuff Mfg. Co ..... Cover
Specialty Mfg. Co 58
Stenman Electric Valve Grinder Co., Inc 64
Suffolk Mfg. Co., Inc 64

Taft-Pierce Co ..... Cover
Tire Construction Co 6

United Engine and Mfg. Co 54
United Motors Service, Inc 14

Vanderpool Co., Wm 52
Victor Mfg. and Gasket Co 16

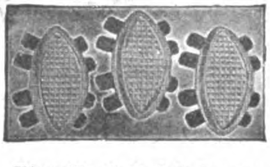
Walden-Worcester, Inc ..... Cover
Webber Mfg. Co 52
Westchester Accessories Co 58
Weston Electrical Instrument Co 57
Wilkins & Hovey Co 58
Williams Foundry and Machine Co 5
Wilson, K. R 7



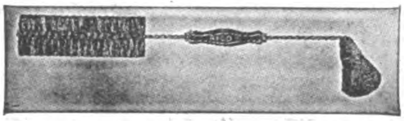
QUALITY SNAP RINGS

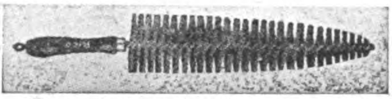
Play a Prominent Part in America's Gas Engine Construction

THE Piston RING COMPANY
SPECIALISTS IN PISTON RINGS
108 SANFORD ST. MUSKEGON, MICH.



Rico Ford Pedal Covers.





Rico Auto Cleaning Brushes.

"RICO" SPECIALTIES

DEALERS!

Cash In On The Big Demand

Rico Ford Pedal Covers—Fit all Ford Models.

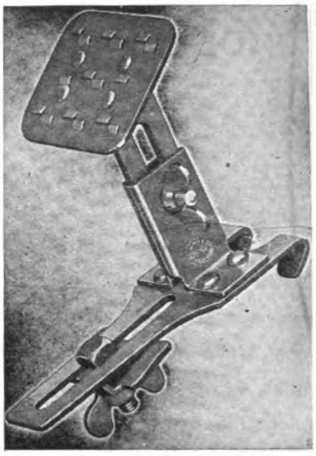
Rico Auto Cleaning Brushes—A cleaner that cleans; good for all cars. Makes work easy.

Rico Universal Extension Pedal—One model for all styles and shapes of clutch and brake pedals.

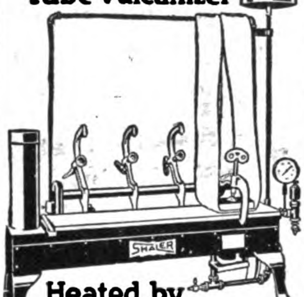
Booklet and Prices at Request.

SEE US AT NEW YORK SHOW, 69TH REGIMENT ARMORY, SPACE 415-416.

RICH MFG. CO., 1777 Broadway, New York



SHALER Bench Tube Vulcanizer



Heated by Gas or Gasoline

Big Extra Profits for Every Garage

This handy Shaler Steam Heated Tube Vulcanizer makes four perfect tube repairs at one time—mends any kind of tear, cut or puncture in any tube perfectly.

Has automatic heat control—no danger of explosions or damaging tubes. Anybody can operate it—does quick work—has large capacity and makes money fast.

Can be had with either gas or gasoline burners. Outfit complete, only $35.00. Subject to Trade Discount.

Send at once for our large, illustrated catalog describing SHALER Vulcanizers for motorists, garages and tire repair shops.

C. A. Shaler Co., 259 Fourth St., Waupun, Wis.

PROFIT ON YOUR LABOR

STENMAN VALVE ELECTRIC GRINDER

Repairers need it; Efficiency prompts its use; Scarcity of workers demand it.

In twenty minutes eight valves can be ground easily and accurately. A perfect job guaranteed. A novice can operate it. The old way by hand takes two hours or more with uncertain results. Saves the time and adds it all to profits.

Plugs in on any lamp socket. A or D current, 110 or 130 volts. Made for higher voltage when required.

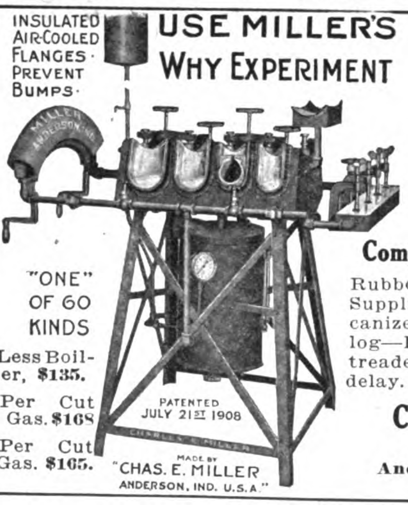
State voltage desired when ordering.

Sold by dealers or direct.

The Stenman Electric Valve Grinder Co.
42 Southbridge Street, Worcester, Mass.

INSULATED AIR-COOLED FLANGES PREVENT BUMPS.

USE MILLER'S WHY EXPERIMENT



MILLER ANDERSON, IND.
PATENTED JULY 21st 1908
MADE BY "CHAS. E. MILLER ANDERSON, IND. U.S.A."

"ONE" OF 60 KINDS

Less Boiler, $135.

Per Cut Gas. $168

Per Cut Gas. $165.

Extra Ply Tires, Tubes, Vulcanizers

60 kinds.

6 kinds Wrapping Machines—Tire Building Stands—Air Pumps—Repair Stocks—Reliners—Steam Boilers.

Complete Tire Shop Outfits

Rubber Workers Tools and all Supplies—Boot and Shoe Vulcanizer—FREE 84-page Catalog—Four Cavity Ribbed Retreader. Write today. Don't delay.

CHAS. E. MILLER
1402 Meridian St.,
Anderson, Ind. U. S. A.

HIGGINS QUALITY SPRINGS KEEP YOU

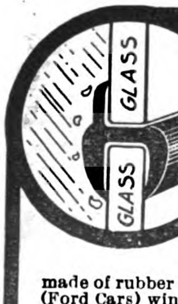
TROUBLE

Highest grade materials give Higgins Quality Springs longest life under most strenuous service.

No hump. No hole. No bolt. No jolt. No center breakage. Never rust or squeak. Quick delivery. Big profits and patronage for dealers.

Write for catalog C 1917 and discounts.

Higgins Spring & Axle Co.
Dept. 129 Racine, Wis.



STOPS THAT LEAK

Thru the Windshield

The McCormick-Allmand Patented Weatherstrip is a necessity for every car. Now is the time it sells like hot cakes. Big profits.

McCORMICK-ALLMAND —WEATHERSTRIP—

PATENTED

made of rubber for both regular and off-set type (Ford Cars) windshields. Closes space on windshields making it absolutely watertight. Fits any space or thickness of glass. Easily put on and off.

GLASS
GLASS

Write for Dealers' Proposition

Robinson Mfg. Co. 502 Lincoln Bldg. Louisville, Ky.

For sale by accessory and hardware dealers or by MAIL POST-PAID 50c EACH

RAIN-SNO

CLEAR VIEW

WINDSHIELD CLOTH

PREVENTS ACCIDENTS

Just RUB IT OVER THE GLASS and RAIN or SNOW cannot collect to obstruct the vision.

INSIST UPON THE "RED CLOTH"

Which is guaranteed to give continuous use for one year or money refunded. Made only by

SUFFOLK MANUFACTURING CO., INC., DEPT. D.
69 LONG WHARF BOSTON, MASS.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

DEMAND DYER

WHEN

You Want The Best Ford Replacement Parts

WE NOW MANUFACTURE

In Large Quantities

Pistons (regular and lightweight), Step-Cut Rings, Diagonal-Cut Rings, Wrist Pins, Wrist Pin Bushings, Rear Axle Shafts, Spindle Body Bolts, Spindle Arm Bolts, Stationary Cones and Adjustable Cones.

Guaranteed to satisfy most rigid requirements on material, sizes and workmanship.

Standard Weight

THE BEST ALWAYS

SIZES

STANDARD
.0025 oversize
.005 oversize
.010 oversize
.015 oversize
.025 oversize
.031 oversize
.033 oversize

Lightweight

FORD TYPE PISTONS

Car Owners and Dealers Want Dyer Pistons Because:

1. **All Measurements are Guaranteed Correct.**
2. **They are Accurately Fitted With the Best Step-Cut Rings.**
3. **They are of Uniform Weight—3¼ Pounds.**
4. **Pistons and Rings are Ground to Exact Size and Have a High Finish.**
5. **The Pins and Bushings are Made From the Best Stock Carefully Ground, Reamed and Fitted.**

NOTE: ***We are again producing our well-known cast iron "Lightweight" piston which is One Pound lighter than the regular Ford giving less wear and vibration and more power and speed.***

THE G. H. DYER CO., Cambridge, Mass.

CHARLES C. GATES, E. M.

What Jobbers are doing.

1919 is to be a big year for blowout patches—Everybody predicts it.

Tires are scarcer and are costing more than for many years past, and the motorist insists on getting more miles out of them.

Today when a car owner buys an inside patch, he wants service, and expects it—A "take-your-own-chances" sort of a patch won't go.

The dealer who serves him knows this and is now demanding a patch that is backed by a guarantee—and it is the same with the jobber.

Over 120 of the biggest accessory jobbers of the United States have already specified their 1919 requirements and every one of them calls for a patch with the manufacturer's guarantee printed on it, so that the car owner will know just what he is buying.

The "Vulco"—Guaranteed—is the best patch we ever made—it's the kind of patch the car owner has always wanted, and now he is demanding it.

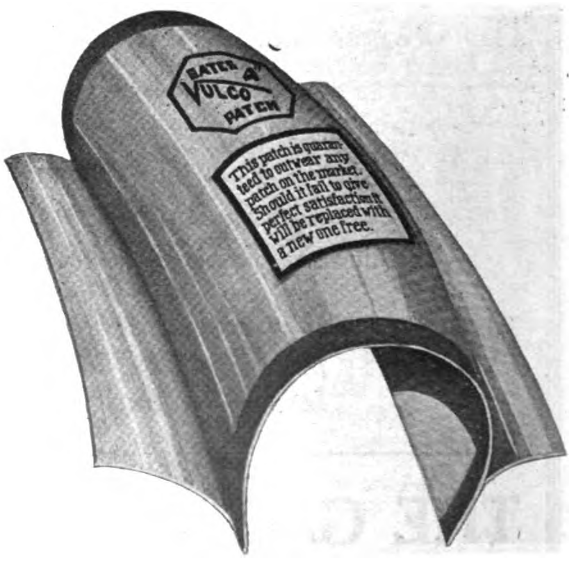
You'll say "probably costs too much," but here is where a surprise awaits you—it costs no more.

You can sell your customer a guaranteed patch and not only make as much profit but will sell double as many patches as you ever have before.

Don't overlook this big sales opportunity—your jobber will tell you about it.

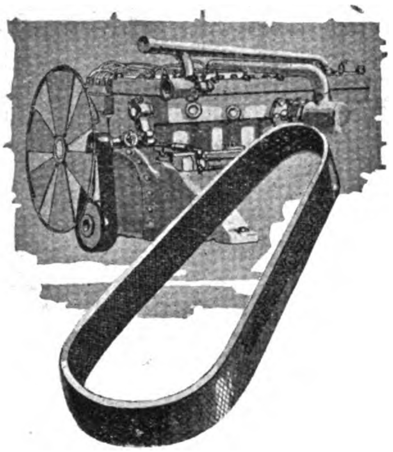
GATES
Rubber Company
DENVER

"World's Largest Makers of Fan-Belts"


GATES
VULCO
PATCH
This patch is guaranteed to outwear any patch on the market. Should it fail to give perfect satisfaction will be replaced with a new one free.

"The Best Patch We Have Ever Made."

It's coming to you!



The Standardized Fan-Belt

If you are going to double your fan belt business in 1919, you are going to sell the standardized fan belt—it's the only way to do it.

But its easy to see why the standardizing of fan belts means money in your pocket—because it puts you in a position to fit all the cars in your territory from a small stock of standardized sizes.

It isn't a case of one belt being made to fit only one car. A single standardized fan belt will fit as many as twelve or fourteen cars and models and from a stock of only eight or nine standardized sizes you can fit any car that stops at your door.

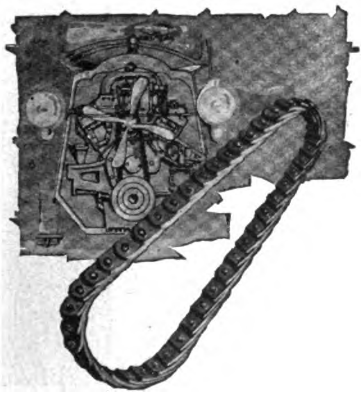
That means service to your customer and doubled fan belt profits.

Every Gates Vulco-Cord Belt you sell carries the manufacturer's guarantee of satisfaction to your customer. This is the reason why upwards of 4,000,000 Gates Vulco-Cord Belts have alreadv been sold this year, and why over 25,000 dealers are now selling Vulco-Cords.

And there is no substitute for the standardized Gates Vulco-Cord Belt—for it is patented.

Unless you are planning to double your fan belt profits in 1919, you aren't getting your share of the fan belt business.

But by all means get this business,—its profitable.



Gates Vulco-Cord "V" Belt.

GATES
Rubber Company
DENVER

"World's Largest Makers of Fan-Belts"

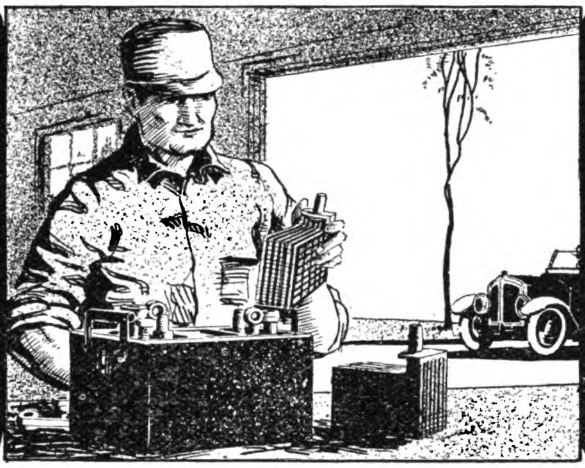
STOP! LOOK AND LISTEN

COMING!

A Wonderful Silent Worker

A master mechanic at the command of Ford Car and Tractor owners and jobbers and dealers who serve them.

Garage Owners Service Station and Supply Men



Spring Is In The Air It's Time To Repair

Use Universal Battery Service and Make Big Profits

The spring drive is on! You will soon be rushed to the limit with repair work. Be ready to render prompt and efficient service. Look after your batteries, battery plates and parts—and do it now. Be prepared!

Universal Battery Service

means complete service—perfect service. No longer is it necessary for you to deal with a dozen different makers. You can now turn your battery needs over to the Universal Battery Company with the absolute assurance that you can depend on our service IN EVERY DETAIL.

Universal Battery "Parts Service" has solved your biggest problem—the prompt delivery of all parts needed for replacements and repairs, such as plates, terminals, connectors, separators, etc. We make and carry in stock complete batteries and also plates and parts for every battery for which there is a popular demand.

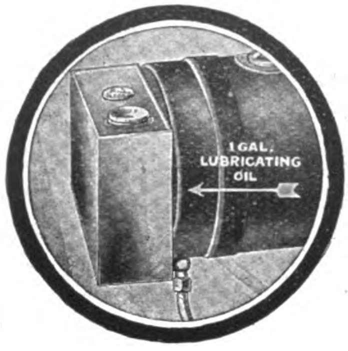
Let us show you how we can save you money, time and trouble. A postcard will bring our interesting and instructive catalogue to you promptly. Send for the 1919 catalogue.

UNIVERSAL BATTERY CO.

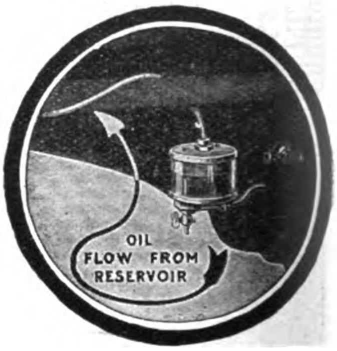
3420 S. LaSalle Street Chicago, Ill.

"Makers of Universal Starting and Lighting Batteries and originators of the sealed glass cell. A complete battery for every popular make of car and a repair part for every standard make of battery. They are also manufacturers of vehicle plates and parts for both pleasure and commercial cars."

The One Device You Are Paying For —Whether You Buy It or Not!

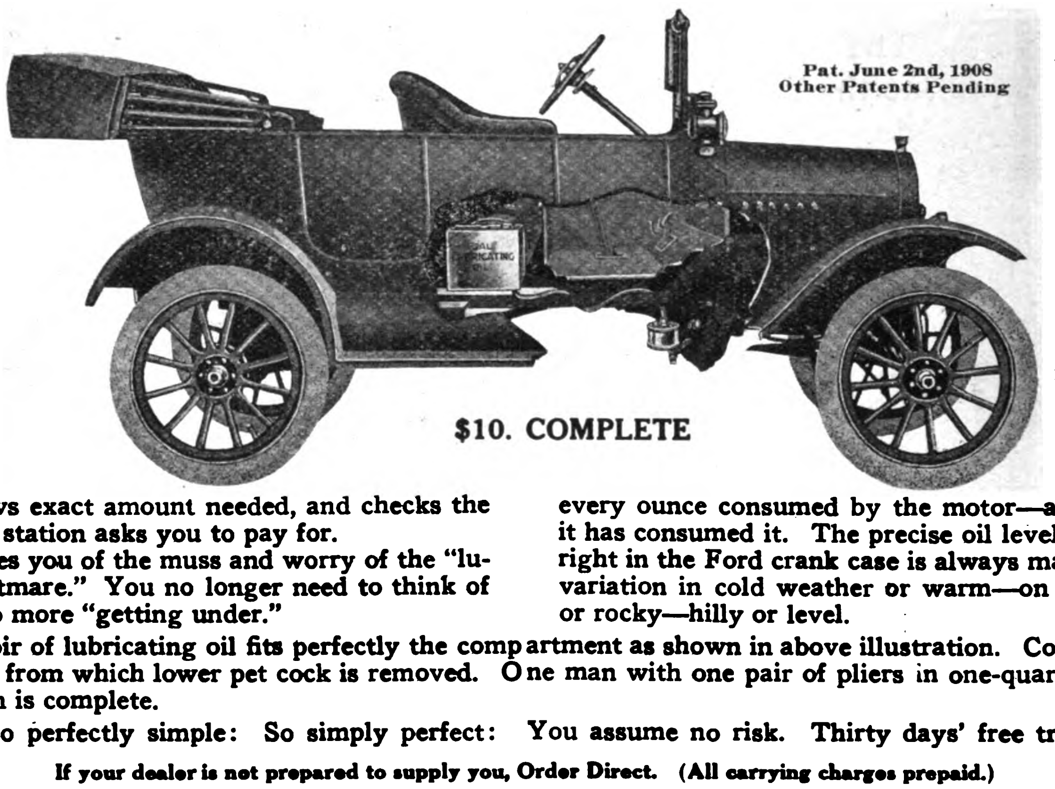


The SENG STANDEX



Automatic Lubricating System FOR FORD CARS

Engineering and Trade Journals say it represents the greatest stride and the most worth while improvement in Ford Equipment since the appearance of Self Starters.


Pat. June 2nd, 1908
Other Patents Pending

$10. COMPLETE

No more filling crank case through filler-tube under hood.

You fill and carry your lubricating oil under the seat—the logical storage place. Gives you a positive gauge showing amount of lubricating oil in reservoir at all times, shows exact amount needed, and checks the amount filling station asks you to pay for.

Forever relieves you of the muss and worry of the "lubricating nightmare." You no longer need to think of pet cocks. No more "getting under."

Tests on Ford passenger cars and trucks have conclusively proven that the Standex eliminates carbonizing and spark plug troubles; likewise heating and "pounding" of motor.

The Standex automatically replenishes every ounce consumed by the motor—and only when it has consumed it. The precise oil level prescribed as right in the Ford crank case is always maintained. No variation in cold weather or warm—on smooth roads or rocky—hilly or level.

Gallon reservoir of lubricating oil fits perfectly the compartment as shown in above illustration. Control chamber screws in hole from which lower pet cock is removed. One man with one pair of pliers in one-quarter hour—and the installation is complete.

So perfectly simple: So simply perfect: You assume no risk. Thirty days' free trial.

If your dealer is not prepared to supply you, Order Direct. (All carrying charges prepaid.)

The ingenious "gradometer tube" in control chamber stops oil flow when car is on down grades; also automatic provision against fly wheel's churning of oil, causing an inaccurate level in crank case.

STANDEX MANUFACTURING CORPORATION

Makers of

STANDEX
Motor Devices
345-47 E. Ohio Street
CHICAGO, U. S. A.

STANDEX MFG. CORP. **Dealer Coupon**
345-47 E. Ohio Street, **Chicago, U. S. A.**

We are interested in your dealer proposition on the Standex system.
Mark "x" if you wish literature
Mark "x" if you wish sample billed (at dealer's discount)

*Name*________________________
*Address*________________________
(Pin coupon to letterhead)

STANDEX MFG. CORP. **For Ford Owner**
345-47 E. Ohio Street, **Chicago, U. S. A.**

Enclosed find $10.00 for one Standex system—under terms of your 30-day trial offer

*Name*________________________
*Address*________________________

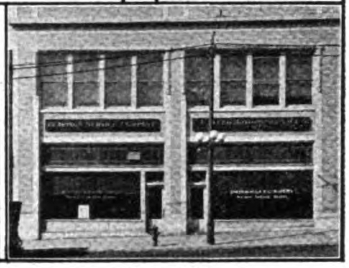
Delco **KLAXON** **REMY**

SERVICE

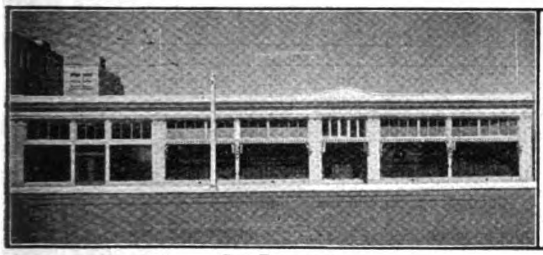
Chicago

New York

Denver

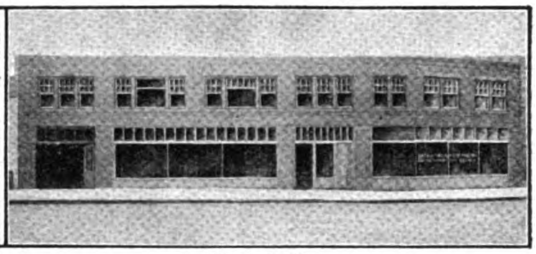


Kansas City



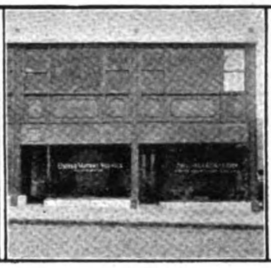
San Francisco

Boston



Minneapolis

Los Angeles



Atlanta

Cleveland

Detroit

Eleven Branches Established—Eleven More Branches Building

YOU want direct contact with the manufacturers of Delco, Klaxon or Remy when needing service on any of these equipments.

The Delco, Klaxon and Remy Companies have established in United Motors Service Inc. their combined service department. Pictured above are eleven United Motors Service Inc. branches where you may obtain this service. Another group of eleven branches is in process of being established.

Through these branches you eliminate most of the serious trouble that comes from neglect ordinarily. And, too, it is an economical service.

Genuine replacement parts—expert mechanics who are experienced in working on these products—these advantages you derive from dealing with the Official Factory Branches for Service.

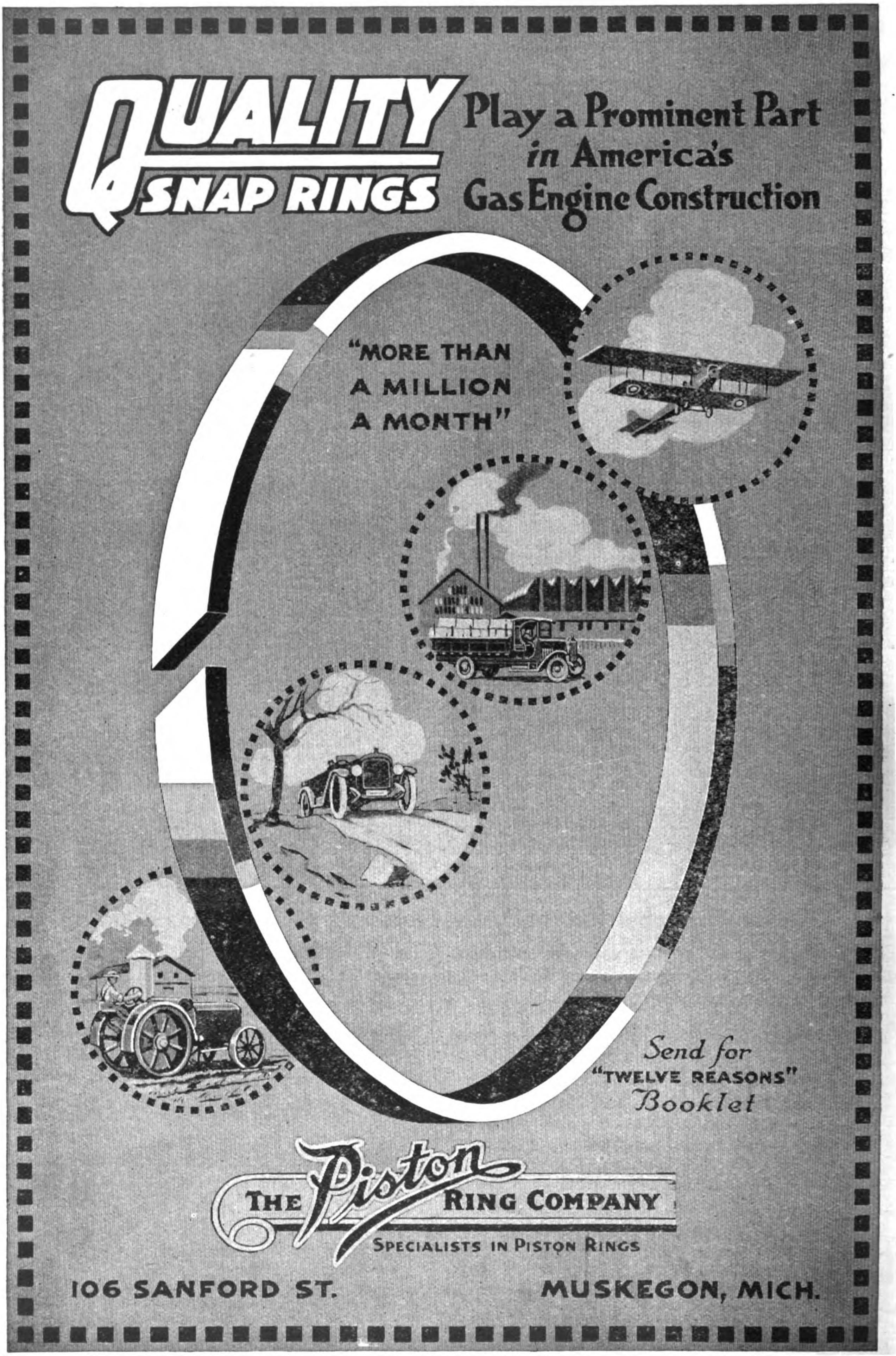
United Motors Service Inc., and Authorized Distributors are the only national service organizations for Delco, Klaxon and Remy equipment.

General Offices: Detroit, Michigan

UNITED MOTORS SERVICE

INCORPORATED

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)



QUALITY SNAP RINGS Play a Prominent Part *in* America's Gas Engine Construction

"MORE THAN A MILLION A MONTH"

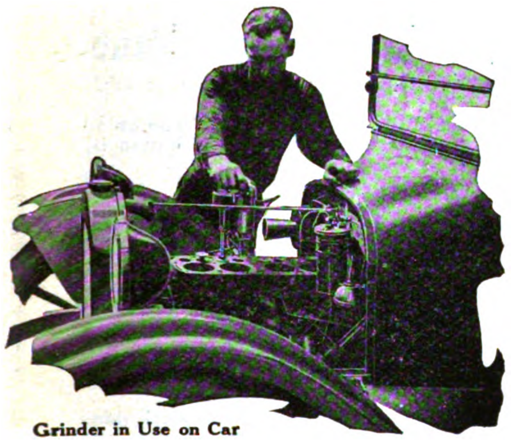
Send for "TWELVE REASONS" *Booklet*

THE *Piston* RING COMPANY
SPECIALISTS IN PISTON RINGS

106 SANFORD ST. MUSKEGON, MICH.

JACKSON Electric Valve Grinder

Cuts Out Losses and Puts New Profits in Their Place

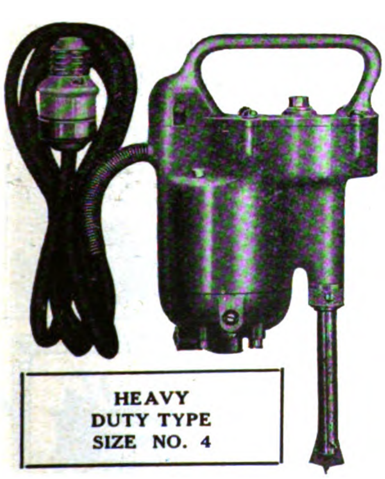

Grinder in Use on Car

THE JACKSON ELECTRIC VALVE GRINDER that can make good in War, can make good in Peace. It can make valve grinding a profitable part of your business with profits worth considering. It will speed up overhauling, make better satisfied customers, and will bring you new business. Your shop with a JACKSON ELECTRIC VALVE GRINDER can make more money by doing better work with less effort.

Hand Valve Grinding Does Not Pay

Every time an employee in your shop grinds a valve by hand he automatically checks up on your books a loss. If he is a skilled laborer —and to produce expert results he should be—many valve grinding jobs taken at such a loss will prove to be a decidedly bad investment for you.

But when this same employee—or an unskilled laborer, at a decidedly lower salary—with a JACKSON ELECTRIC VALVE GRINDER, can do the same work just as well or better in less time, and show a liberal profit, isn't it worth while to investigate the machine that will bring this profit out of an old established loss?


HEAVY
DUTY TYPE
SIZE NO. 4

***DEALERS:*—Send Coupon for Prices and Full Information.**

***JOBBERS:*—Get in Touch With Us.**

Kalamazoo Railway Supply Company

Kalamazoo, Mich.

Send This Coupon for Full Information—NOW!

Kalamazoo
Railway Supply Co.,
Kalamazoo, Mich.

Gentlemen:
Please send, without obligation, full particulars regarding the Number Four heavy duty type JACKSON Electric Valve Grinder.

NAME..................................
ADDRESS..................................
My jobber is..................................

MANLEY

GENERAL UTILITY GARAGE CRANES THE Manley WAY

Floor capacity, 3000 lb. lift. Wrecking capacity 4000 lb. lift.

A WONDERFULLY EFFICIENT AND LABOR SAVING FACILITY.

The value of garage equipment is the profit it will earn
If you do work others cannot do—
If you do work quicker and with less labor—
If you do more satisfactory work
You get your price and you make profit that is worth while.

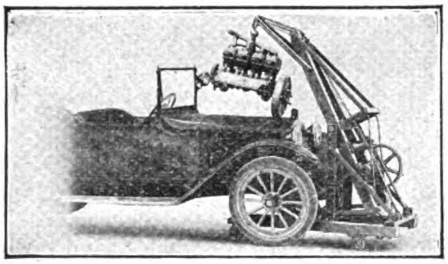
The Manley General Utility Garage Crane

IS A MANY PURPOSE TOOL

It is collapsible, but can be assembled, either for use in a garage or on a truck for wrecking work, and disassembled, in five minutes by two men.

It can be taken anywhere in a car and used as in the garage.

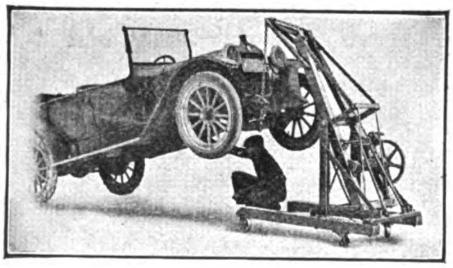
It has every utility of a portable floor crane and a truck-mounted crane, does not tie a truck exclusively to wrecking work and requires no storage space.

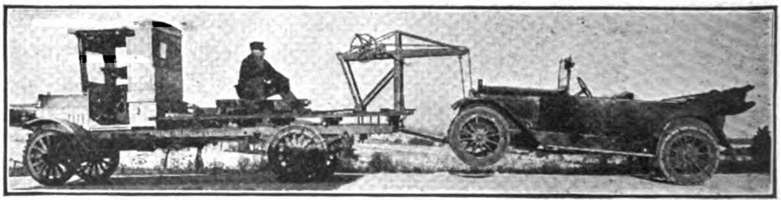


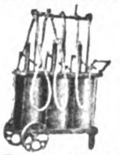
Specification: As a floor crane on base, length 66 in., width 36 in., height of base 9 in., height of lift 7 ft., weight 465 lbs. As a wrecking crane only: Overhead beam horizontal 42 in., length of beam overall 78 in., length of anchor piece and saddle foot 36 in., distance between bolt holes 24 in., weight 355 lbs.

Manley Cranes are productive the whole year through. The work done commands high prices. They earn you substantial profits, and profits are what you are in business for.

UNITED ENGINE & MANFG. CO.
HANOVER PENNSYLVANIA







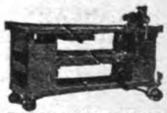
PORTABLE OIL SERVICE. 1, 2 or 3-tank units Self-measuring.

EVERY WAY ENGINE STAND Fits any suspension.

PORTABLE CRANE. Well balanced. Extraordinary lift and overhang.

WRECKING CRANE for mounting on trucks

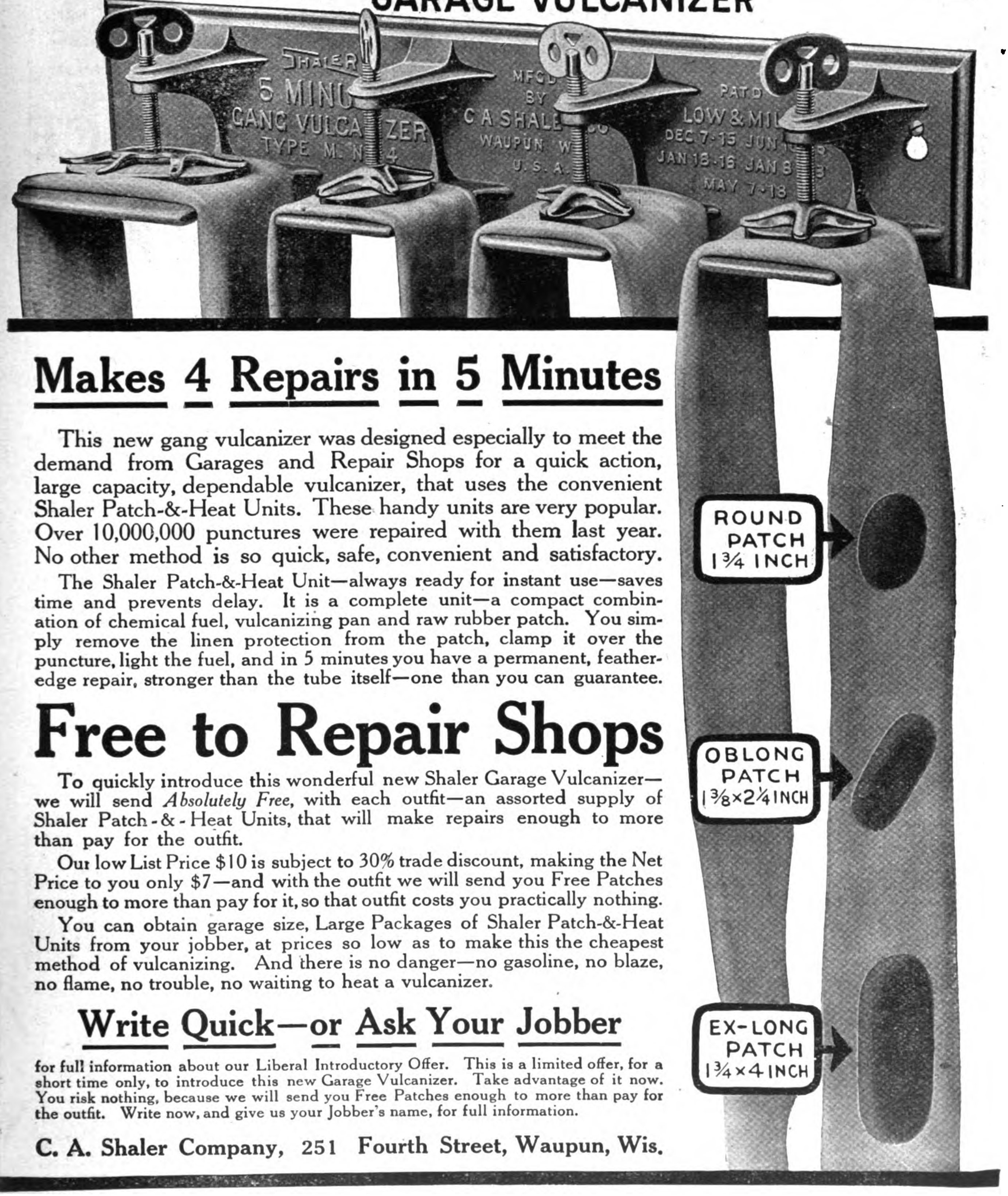
UNIVERSAL AUTO PRESS. Garage necessity. Fits all work.



PORTABLE BENCH Work right at the car. Easily handled.

SHALER

5 MINUTE
GARAGE VULCANIZER



Makes 4 Repairs in 5 Minutes

This new gang vulcanizer was designed especially to meet the demand from Garages and Repair Shops for a quick action, large capacity, dependable vulcanizer, that uses the convenient Shaler Patch-&-Heat Units. These handy units are very popular. Over 10,000,000 punctures were repaired with them last year. No other method is so quick, safe, convenient and satisfactory.

The Shaler Patch-&-Heat Unit—always ready for instant use—saves time and prevents delay. It is a complete unit—a compact combination of chemical fuel, vulcanizing pan and raw rubber patch. You simply remove the linen protection from the patch, clamp it over the puncture, light the fuel, and in 5 minutes you have a permanent, feather-edge repair, stronger than the tube itself—one than you can guarantee.

Free to Repair Shops

To quickly introduce this wonderful new Shaler Garage Vulcanizer—we will send *Absolutely Free*, with each outfit—an assorted supply of Shaler Patch-&-Heat Units, that will make repairs enough to more than pay for the outfit.

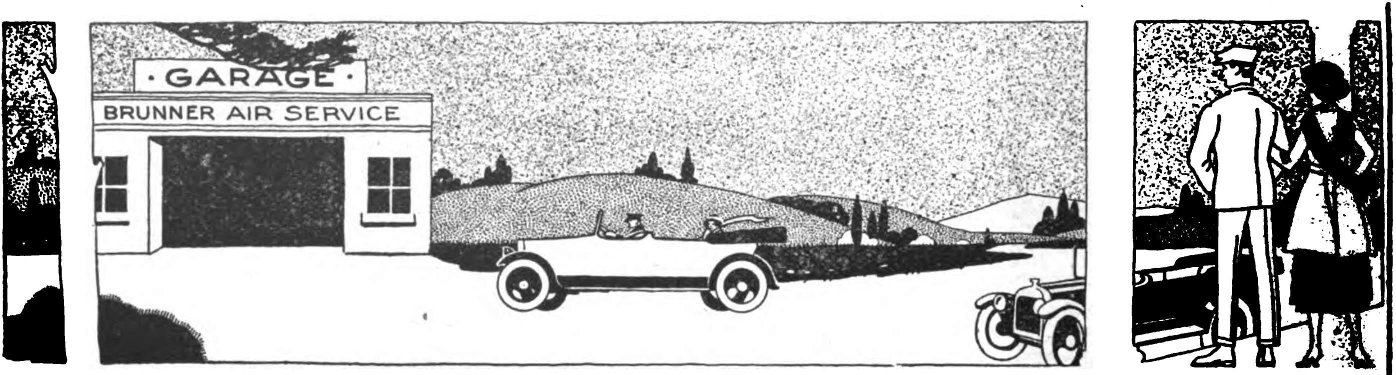
Our low List Price $10 is subject to 30% trade discount, making the Net Price to you only $7—and with the outfit we will send you Free Patches enough to more than pay for it, so that outfit costs you practically nothing.

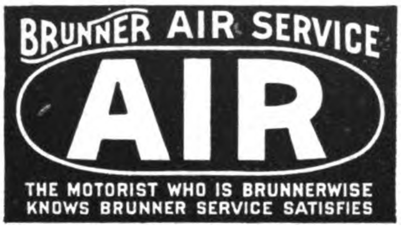
You can obtain garage size, Large Packages of Shaler Patch-&-Heat Units from your jobber, at prices so low as to make this the cheapest method of vulcanizing. And there is no danger—no gasoline, no blaze, no flame, no trouble, no waiting to heat a vulcanizer.

Write Quick—or Ask Your Jobber

for full information about our Liberal Introductory Offer. This is a limited offer, for a short time only, to introduce this new Garage Vulcanizer. Take advantage of it now. You risk nothing, because we will send you Free Patches enough to more than pay for the outfit. Write now, and give us your Jobber's name, for full information.

C. A. Shaler Company, 251 Fourth Street, Waupun, Wis.




BRUNNER AIR SERVICE
AIR
THE MOTORIST WHO IS BRUNNERWISE
KNOWS BRUNNER SERVICE SATISFIES

This red and blue enameled sign is distinctive—not easily confused with others. The motorist looks for it. It brings him to you for service and sales. Furnished FREE to users of Brunner Air Compressors.

No. 542 Outfit.

Ideal for Installation where space is limited. Has ample capacity for garage housing up to forty to sixty cars. The motor is ⅛ H. P. securely bolted to substantial cast iron base and mounted on a 32 gal. Open Hearth Flange Steel Air Tank tested to 300 pounds.

The compressor is our No. 102, 2-cylinder air-cooled, each cylinder fitted with a safety valve that can be instantly set for any desired pressure and absolutely dependable under all conditions.

The outfit includes air gauge, check valve, 25 feet of 3/16 in. "Resistoil" air hose, connected to one No. 82 needle valve on one end and having automatic tire connections on the other.

When used with our Model M Controller this outfit is entirely automatic.

GOOD AIR SERVICE MEANS BRUNNER EQUIPMENT

Motorists have learned in traveling through the country, that there are more garages equipped with Brunner Air Compressors than with any other make, and that the service at each is dependable always. They are sure to get air wherever they see a Brunner Air sign, and without waiting, fuss or bother.

Brunner compressors are never out of order, never refuse to work and do not waste your mechanics' time looking after them. Brunner Tanks are made to stand the pressure. Built specially for garage air service. Brunner air hose, valves and all fittings are the best that can be made. Not made to fit a price but to perform a service.

BRUNNERIZE NOW

Look over your present equipment. If your pump is still serviceable, ten to one you will need new hose, connections and perhaps a tank. Buy it now and be sure it's Brunner equipment. It's cheapest in the end and it's better to do it now than to wait and be sorry.

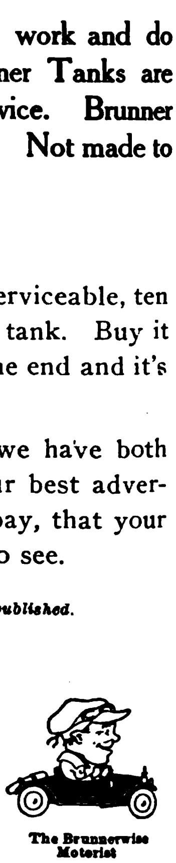
Brunner Air or Free Air signs (whichever you prefer, we have both kinds) are furnished free to Brunner users. They're your best advertisement and the only one, regardless of what you may pay, that your best prospects for business actually look for and are glad to see.

Write for catalog No. 15, the most complete air service catalog yet published.
We'll give you the name of the jobber who covers your town.

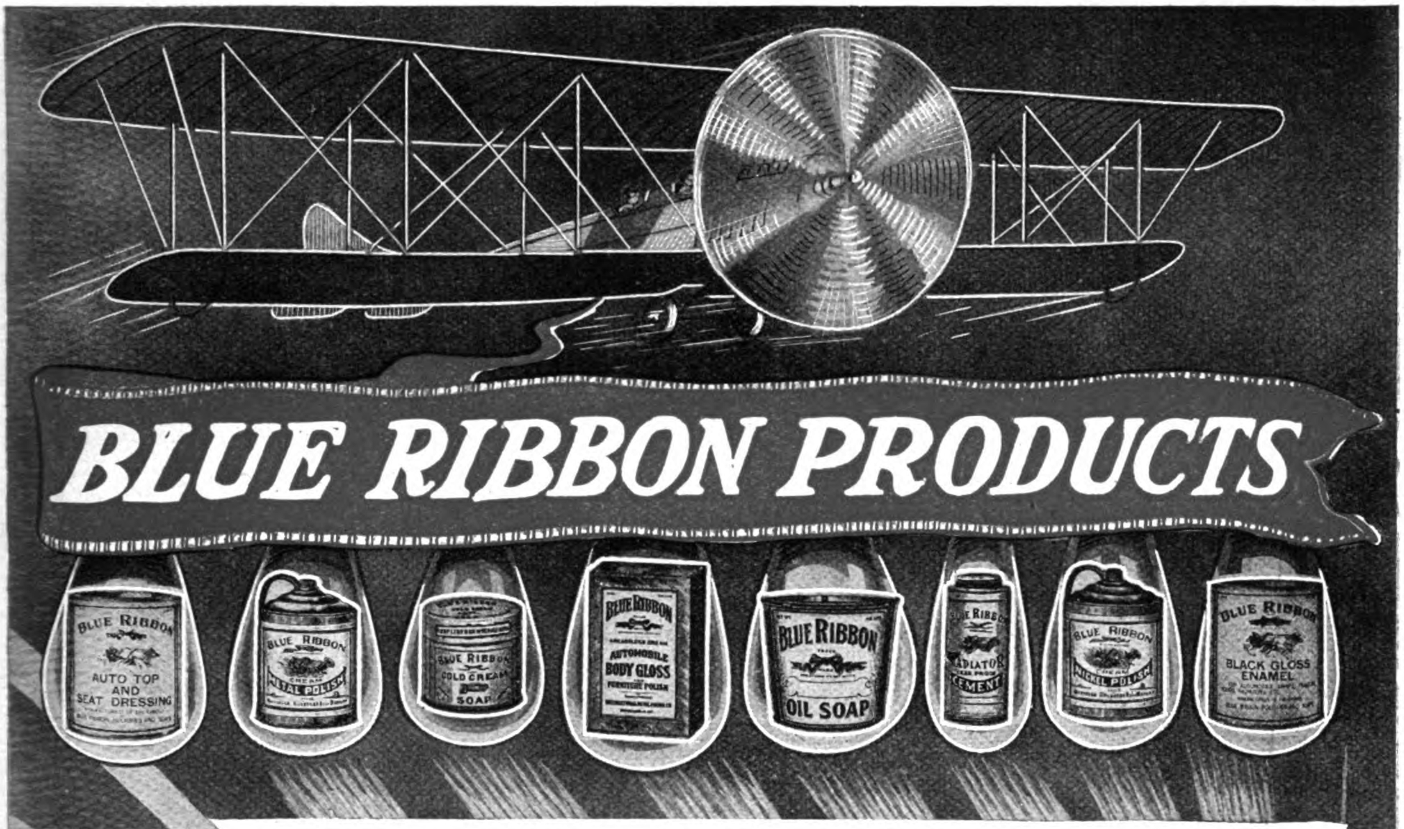
Brunner Manufacturing Company

General Office and Plant: Utica, N. Y.

Cincinnati Branch, Cincinnati, Ohio



The Brunnerwise Motorist


BLUE RIBBON PRODUCTS
BLUE RIBBON AUTO TOP AND SEAT DRESSING
BLUE RIBBON CREAM METAL POLISH
BLUE RIBBON COLD CREAM SOAP
BLUE RIBBON AUTOMOBILE BODY GLOSS FURNITURE POLISH
BLUE RIBBON OIL SOAP
BLUE RIBBON RADIATOR CEMENT
BLUE RIBBON NICKEL POLISH
BLUE RIBBON BLACK GLOSS ENAMEL

Are a Standard Line

Jobbers and Dealers stock the full Blue Ribbon line as they do all other tried, proven and constantly selling goods.

Blue Ribbon products are made by specialists who depend wholly on the quality and service giving satisfaction afforded by lines bearing their trade mark.

There can be no experimentation at the expense of the consumer, dealer or jobber. All Blue Ribbon Specialties must be as good as they are practical in every day use as it is possible to make them.

A nation wide trade, enormous expenditures devoted to development and promotion work as well as the maintenance and operation of the largest plant of the kind in America is too great a stake to gamble against quality.

Blue Ribbon Products today stand supreme. They are passed over the counters backed by an unqualified guarantee on the part of the trade that can leave no doubt as to their merits.

That is why Blue Ribbon Products are a standard line and will always continue to be so.

That is why all jobbers and dealers sell and list them in their catalogues.

Above all else that is why the consumer buys Blue Ribbon trade marked products. Blue Ribbon Products cost no more than others, yet represent the most profitable line that can be placed by the jobber or dealer.

If the **BLUE RIBBON** trade mark is to be seen on your shelves or counter you have a silent salesman in your store that is always working, always earning.

All Blue Ribbon Specialties are sold in quantities to meet any requirement.

The full line affords a complete line and it pays to specialize in known quality goods.

Blue Ribbon Specialties Include:

Blue Ribbon Cold Cream Hand Soap
Contains no pumice or sand.

Blue Ribbon Leak Proof Cement
A permanent radiator cement.

Blue Ribbon Nickel Polish
For nickel parts and trimmings.

Blue Ribbon Auto Body Gloss
For automobile or furniture.

Blue Ribbon Lightning Carbon Remover
Quick and positive in action.

Blue Ribbon Black Enamel
For lamps, hoods, radiators and metal parts.

Blue Ribbon Auto Top and Seat Dressing
A waterproof dressing that restores tops and seats.

Blue Ribbon Hand-On Patch
A self-vulcanizing patch for shoes and tubes that never fails.

Blue Ribbon Cream Metal Polish
For any metal. An easy, quick working, satisfactory polish.

Blue Ribbon Oil Soap
A pure vegetable oil soap for any purpose. All quality and efficient.

This is the time to consider your winter and spring requirements

Jobbers and Dealers: Prices and discounts at request.

BLUE RIBBON LIQUID RADIATOR CEMENT
BLUE RIBBON Hand-on Patch
BLUE RIBBON LIGHTNING CARBON REMOVER

International Metal Polish Co.
INDIANAPOLIS, INDIANA.

MOSCO Motor Car Specialties

"There is a difference"

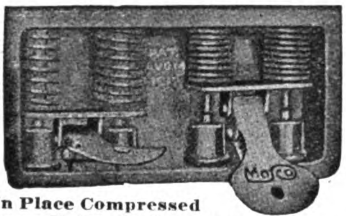
That is why all Jobbers and Dealers sell Them

A GUIDE TO QUALITY MOSCO IN FITTINGS FOR MOTOR CARS

THE difference lies in the sterling service giving qualities. In the design and construction and added car efficiency, economy and pleasure. The "Mosco" trade mark guarantees these qualities. It establishes confidence between the dealer and consumer.

"Mosco" specialties cost the trade no more than others and when measured from the viewpoint of demand and sales, form the most desirable line of Ford car equipment ever stocked by the trade.

"Mosco" merit is known to all Ford car owners. "Mosco" sales are ever increasing and the "Mosco" dealer proposition is in keeping with the quality of "Mosco" specialties. Once a "Mosco" dealer, always a "Mosco" dealer. Satisfactory goods, big sales and substantial profits form a combination now offered to all jobbers and dealers. New catalogue and 1919 trade discount sheets ready for distribution.

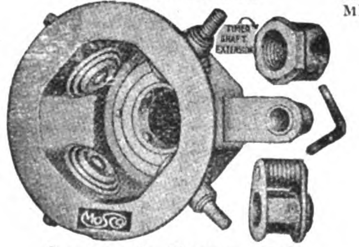


In Place Compressed Mosco Valve Spring Compressor for Ford Car

By using this simple device springs can remain in position until grinding of valves is completed.

It compresses two valve springs at one operation and permits removing of pins. Should the pins be crosswise turn valve around until they are in position to pass through slots in compressor. After grinding valves reverse above operation. Made of heavy pressed steel.

PRICE, 50c EACH.



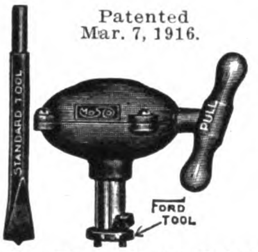
Improved Bemus Ball Contact Timer for Ford Car

The BEMUS is an IDEAL TIMER for the Ford high speed, short stroke engine, because form of contact is the only one which is correct both electrically and mechanically. This is made by a hardened tool-steel brush, mounted on eccentric cam, engaging spring-pressed steel balls with glancing impact, both the brush and the balls turning each time so that fresh contact surfaces are continually made. The brush comes in contact only with the four balls, touching no other part.

MOUNTING is direct on the time shaft by means of an extension piece which is screw threaded on to shaft, and runs in ball bearing placed in recess of timer shell. This means that each of the balls is equi-distant from the brush. **RESULT**—absolute precision of timing.

PRICE, $2.50.

Patented Mar. 7, 1916.



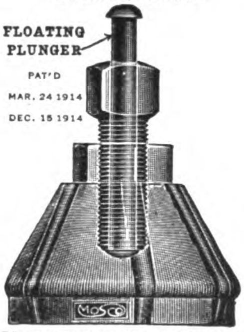
The Mosco Valve Grinder

It renders valve grinding an accurate mechanical operation rather than a guesswork hand job.

It has been found that a much more rapid motion can be obtained with the Mosco Grinder than with the ordinary tool, resulting in a very superior finish on the seats.

It is guaranteed in every respect. It is offered not only as a tool, but as a QUICKER, SAFER and BETTER METHOD of valve grinding.

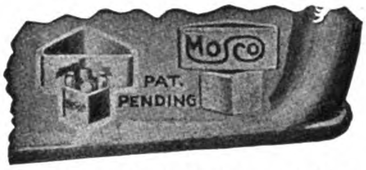
PRICE, $2.00.



Mosco Floating Plunger Wheel Puller

Starts a "Frozen" or "Stuck" wheel instantly. Strike the plunger; turn the screw, strike again and the wheel comes off without injury to hub threads, spokes or axle.

Made for 200 models of 45 popular makes of cars.



Mosco Socket Nut and Bolt Holder for Ford Car

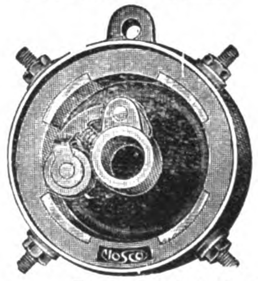
Takes the place of that other man whose help is usually required for this operation.

Simply slip MOSCO Nut and Bolt Holder over the top of each engine or transmission nut or bolt head, the wings protruding above the hex socket engage wall of crank or transmission case and prevent nut or bolt head from turning while the man underneath the car unscrews the bolts.

When replacing put head of bolt on top, slip on the MOSCO socket and proceed as in taking out.

All case hardened; finished bright.

PRICE, 20c EACH.

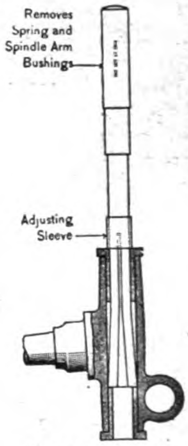


Patented Oct. 31, 1916

Mosco No. 200 Timer for Ford Car

The case is made of extra heavy pressed steel, finished in aluminum. Gray bone fiber is used for raceway, with steel inserts dovetailed in. The threaded terminals are insulated by fibre washers all the way through to contact points, thus removing cause of short circuiting.

PRICE, $1.50.


Removes Spring and Spindle Arm Bushings
Adjusting Sleeve

Mosco Jiffy Bushing Remover

For Ford, Dodge, Dort, Chevrolet, Saxon, Overland and all Cars, Trucks and Tractors having ½" spindle bolt.

Made of steel, case hardened.

Indispensable to repairman and owner who does his own work.

Pays for itself in a few minutes.

The only tool now in use that will remove steering knuckle, spindle arm and spring bushings.

PRICE, $1.50.

Motor Specialties Company

WALTHAM MASS.

RECONSTRUCTED TIRES

FOR THE DEALER—MORE PROFIT
FOR THE MOTORIST—MORE MILEAGE

To a dealer in tires, particularly the second tire dealer who is desirous of building up a solid business, cannot with absolute confidence, guarantee a second tire, nor any mileage for that matter, but **he can guarantee our reconstructed** tires for

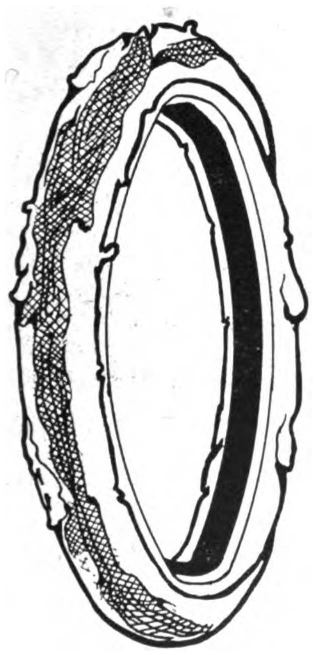
2,500 TO 5,000 MILES

We reconstruct a tire so well that it will even give more mileage than the original. We believe that a worn out tire, properly reconstructed can give much more mileage satisfaction to the car owner, and we have backed our belief to the extent of equipping a modern tire factory, large enough to take care of the big demand for a reconstructed tire. These tires will move rapidly from the start, your customers will quickly see the soundness and rugged construction.

Below Are Our Prices to Car Owners for Reconstructed Tires

Size	Plain	Non-Skid	Size	Plain	Non-Skid	Size	Plain	Non-Skid
30x3	$9.00	$10.20	32x4	$13.40	$14.95	35x4½	$18.20	$20.90
30x3½	10.20	11.25	33x4	13.90	15.50	36x4½	19.25	22.45
32x3½	11.25	12.30	34x4	14.45	16.00	35x5	21.40	24.05
31x4	12.80	14.45	34x4½	17.10	19.75	37x5	23.50	26.20

We have an interesting plan to offer live dealers—either to do their customers' work, or to give exclusive territory on Rebuilt Tires—A confidential price list will be mailed, for the asking, to responsible dealers.



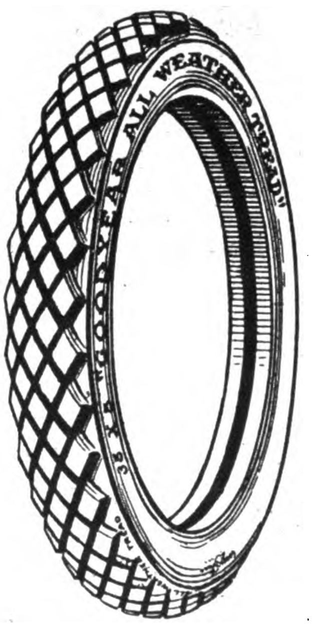
Tire Repairers, Garages Dealers

SAVE $1.50 to $3.00 PER BAND

on Ribbed or All-Weather Tread Bands

We can supply for immediate use any quantity of these bands to concerns doing retreading.

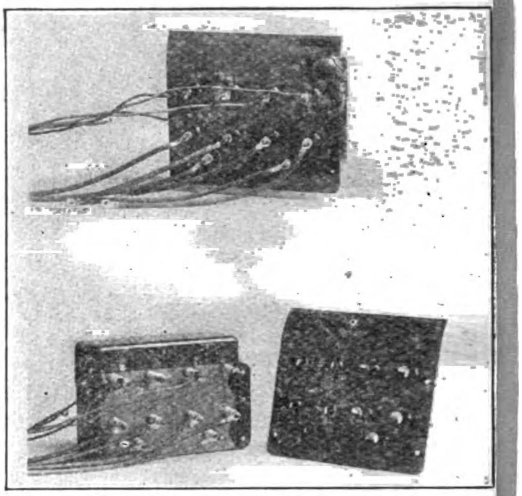
ACT NOW.



TIRE CONSTRUCTION CO.

129-131 Columbus Ave., Boston, Mass.

100% WATER AND MOISTURE PROOF
"CASCO" METAL COIL BOX PROTECTOR
FOR
FORD CARS



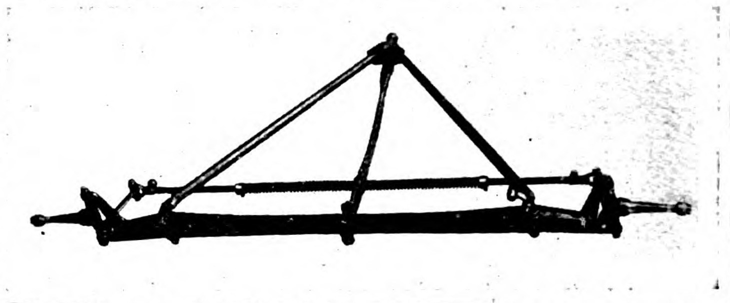
A necessity worth many times the price

IT IS A utility the owner's experience can value
A big economizer of time, labor and expense

The "CASCO" Coil Box Protector obviates 99% of ignition system failures resultant from short circuits, etc., due to water saturation from rain or washing. The coils are positively enclosed but are as easily accessible. The coils need be given no attention once a protector is installed. At a glance the Ford car owner realizes its value. Every owner is a probable buyer. The demand is continuous, not seasonable, the business is certain and the profits are proportionate to your sales promotion.

The unit is sold for $1. Any owner can install it.

"Hold 'Em In the Road"



Has Four Distinct Utilities

Any one of these is worth more to the Ford car owner than the cost of the equipment. The unit serves the purposes of attachments that are necessary for satisfactory and safe car service. These are usually bought separately. The combination is

Radius Rod Brace **Steering Auxiliary**
Axle Support **Anti-Rattler**

List Price $5

It makes operating control positive. It insures against accidents. It strengthens the steering linkage. It prevents noise. It cannot lose efficiency. It will endure longer than the chassis. It will save many times its cost in repair bills and obviates labor that would be necessary without it. It is necessary if the cars are driven by women. These are the reasons for a demand that has reached a total of thousands a month. There is big business ahead for dealers who want continuous sales with substantial profits.

JOBBERS AND DEALERS

These are the two best selling specialties handled by the trade. There are more than 2,000,000 Ford cars in use. Is there any trade prospect that equals this? Write today for special literature and trade quotations.

Prices Higher West of the Rockies, Canada and Foreign Countries.

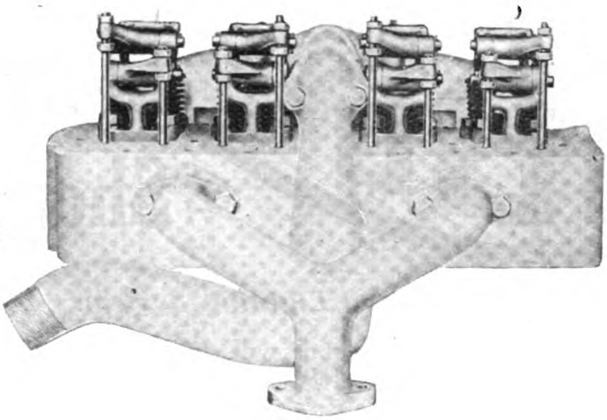
COOPER AUTO SUPPLY CO.
THOMASVILLE MANUFACTURERS GEORGIA

Stupendous Power

Results of Standard Brake Horse Power Test

Standard Ford with regulation carburetor, 18.7 B. H. P. at 1310 R. P. M. ROOF 16 Valve Head with regulation carburetor, 22.4 B. H. P. at 1460 R. P. M.

ROOF 16 Valve Head with special carburetor, 29.7 B. H. P. at 1590 R. P. M.



COMPLETE—READY FOR INSTALLATION
Not a Thing Extra to Buy

PRICE COMPLETE
$100, F.O.B. Anderson Indiana

Manufacturers and Distributors of Ford Speed Specialties

3 to 1 gears, high speed cam shaft, light gray iron pistons, aluminite and lynite pistons, aluminite connecting rods, racing spark plugs, racing carburetor, roller bearings, counterbalances, wire wheels, multiple speed transmission, high tension magneto, special oiling system, special worm and gear steering gear, racing tires, racing bodies, hood and radiator, parts for underslinging chassis.

Tell us what you want. We can supply it. Best quality —lowest prices.

Lightning Speed

Hill climbing by your touring car beyond your wildest dreams

ROOF 16 OVERHEAD VALVE EQUIPMENT

Will Give You This POWER or SPEED

For Commercial Fords

Before the motor truck took its place as the standard of hauling, the strength of the horse that pulled the old style truck was referred to as "brute force."

Now, in the motor truck, it is translated into stupendous, unrelenting power—the more of it the better.

Converted Ford trucks—or passenger Ford chassis with commercial bodies—have tremendous power if you know how to get it out. ROOF 16 Overhead Valve Equipment brings it out, harness it for service, and it **pulls.**

All the speed of the racer goes into power when ROOF Equipment goes onto your Ford commercial car. A steady, dependable, and even power results. It doubles the value of commercialized Fords.

TOURING CARS

Your touring car motor equipped with 16 overhead valves insures you hill climbing feats such as you never dreamed of before. Your Ford becomes a high gear car thru sand and mud and up the very steepest grades, and high priced cars have but little chance to compete with you in general road work.

From the standpoint of motor service your Ford touring car enters the very highest class, and the added power gives you record speed if you care to use it.

For Speedsters

You can literally feel the back of the seat push you forward when you open the throttle of a Ford speedster equipped with ROOF 16 Overhead Valves. Join the growing list of record makers.

Racing Drivers with High Speed Records With Roof Equipment

Jos. C. Hayes, San Francisco, holder of Pacific Coast record for one mile and half-mile tracks, time being 52 seconds. Mr. Hayes has attained a speed of 97 miles per hour.

Ben Lawell, winner of many racing contests of from 1 to 50 miles and owner of the fastest racing Ford.

Bob Cusick, winner of the half mile championship for the State of Iowa.

W. L. Frazer, Washington, D. C., winner of many fast short distance contests.

Herbert Black, Webster City, Ia.; Wm. E. Frank, Jenkintown, Penn.; Rolly Blair, Shelby, Nebr.; Cliff Duhme, Cincinnati, Ohio; L. E. Kerbs, Otis, Kans.; Irving Donohoe, Washington, D. C.; Corp. Paul Boozer, Fort Barrancas, Florida, and hundreds of others with fast records.

Overhauling time is nearly here. Think of what you are going to do to the Ford this Spring. If it is working for you in your business, make it a better employee. Give it greater power and a chance to make good. If it is your passenger car, put it up with the leaders and keep it there. Tell your garageman, when he over hauls either truck or passenger car, to install ROOF Equipment for service.

Send for our complete literature on how to build fast cars and double the value of your converted Ford Truck and descriptive circular on Ford Speed Specialties.

The Victory Motor Company, 58-60 Brookline Ave., Boston, Mass., Distributors will exhibit our Cylinder Head Equipment at Boston Show, March 15th to 22nd inclusive.

Address Production Manager
LAUREL MOTORS CORPORATION
ANDERSON, INDIANA

MAKES AND SAVES MONEY FOR REPAIR MAN OR CAR OWNER

Today electric repairs are both the most important and troublesome in any shop. With the great increase in the electric starting and lighting of autos this branch of the work is vital. And so few are fitted to handle this work profitably that we offer, as money makers and money savers

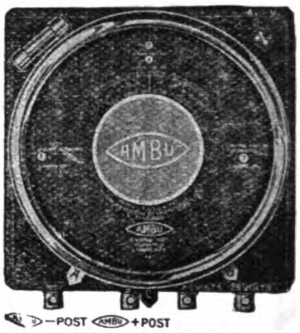
AMBU
TRADE MARK

Electric Repair Shop Equipment

Locates Troubles in Starting and Lighting Systems

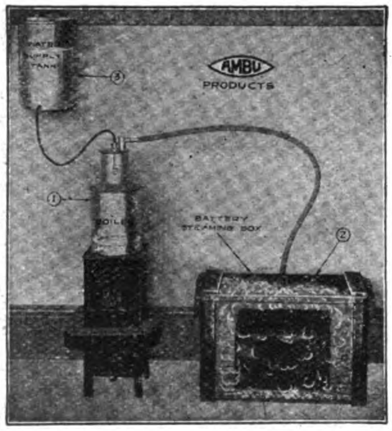
The Ambu Trouble Shooter will not only locate, but will tell you what the trouble is and how to correct it, within less than 30 minutes. NO guessing.

AMBU TROUBLE SHOOTING SYSTEM is simple—any trained mechanic can operate it. He doubles his value to himself as well as to his employer. Car owners want Ambu used, for it saves them money. Repair men want to use Ambu, for it makes them more money for the time employed. To increase your business get AMBU in your shop.



AMBU ELECTRIC TROUBLE SHOOTER—ask for details.

These devices are sold by jobbers—your jobber is in business for your benefit. While he makes a small profit on your business he saves you far more in money, time and trouble.



Works While You Are Busy Elsewhere

To soften the "compound" in a battery without loss of time or danger of burning or cracking the cell. Needs no attention. A necessity in every shop.
AMBU BATTERY STEAMER, complete, $25.00.
AMBU BATTERY STEAMER with condenser for distilled water, $35.00.

AMBU CADMIUM TEST

Tells Condition of Battery Plates

There is one sure way, without the long process of taking the battery down—use the AMBU CADMIUM TEST. Every Battery should be tested with the Cadmium test before delivery to customer, so that you will know it is right.

THE CADMIUM TEST MADE EASY

Tells the condition of both positive and negative plates. Consists of pair of test wires with prods—one mounted with cadmium electrode, and a specially calibrated positive and negative voltmeter.

AMBU CADMIUM VOLTMETER, complete with leads, $25.00.
VOLTMETER ALONE, $22.50. CADMIUM LEADS, $3.25.

Teaches You All About Storage Batteries

Everything that you should know about a Storage Battery is told in this book. How the battery "stores" electricity, how to care for them, how to analyze troubles, how to repair them. A difficult technical subject treated in simple non-technical language. You need this book. Recommended by all battery manufacturers.

Automobile Storage Battery: Its Care and Repair

Five days examination price, $5.00.

Wiring Diagram—1911 to date, 25c each. Book of 1917-1918 cars, $3.50. Ambu Plate Press, each, $25.00; Ambu Plate Burning Rack, small, $7.50; large, $12.50. Ambu Lead Molds, each, $1.75; pair, $3.25. Ambu Battery Carriers, each, $1.75; pair, $3.25. Ambu Battery Turntable, each, $4.00.

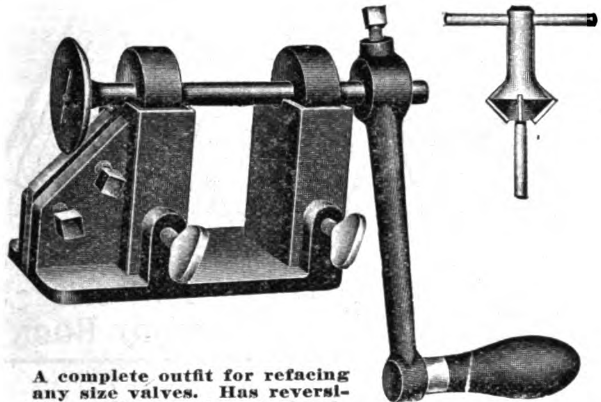
These supplies direct, through your jobber or battery service stations of 100 branches or over.

THE AUTOMOBILE STORAGE BATTERY
ITS CARE AND REPAIR
AMERICAN BUREAU OF ENGINEERING CHICAGO

American Bureau of Engineering 1032 Wabash Ave., CHICAGO

Why Limit Service or Profit?

EQUIPMENT THAT SAVES TIME AND LABOR



A complete outfit for refacing any size valves. Has reversible cutting blades, is hand-operated, can be used on any work bench; a valve-seating tool that has replacable cutters and will take any size guide stem, suited for every type of standard type poppet valve.

***Will Make Big Money In Any* Garage, Repair Shop *Or* Service Station**

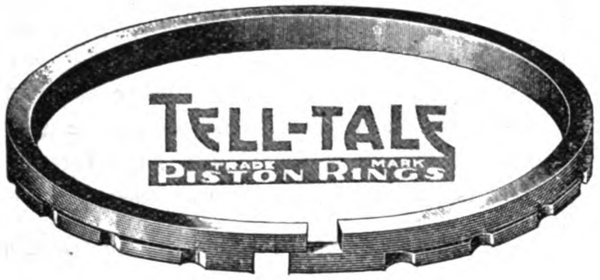
"TELL-TALE"

QUALITY PRODUCTS

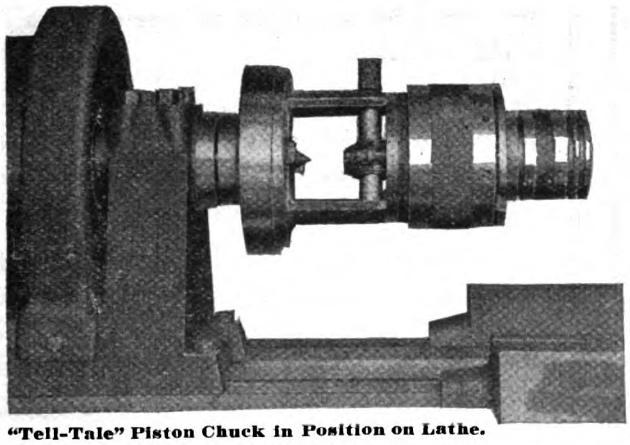
THAT EARN BIG DIVIDENDS because they can be used constantly, that cost comparatively small prices, that afford highest efficiency for years, can be operated by any mechanic and cost practically nothing to maintain.

They are quality products because they are built from the best of materials, are adjustable to all work that may be offered, and all cutting parts can be renewed as desired at small cost.

They are guaranteed as to workmanship, material and utility, and are sold with a guarantee of the greatest satisfaction.



Tell-Tale Piston Rings are made in all standard sizes. They are one-piece, individually cast, step joint, oil cooled piston rings for water cooled or air cooled engines. Recommended by all first-class engineers and mechanics. Write for booklet, TELL-TALE FACTS about piston rings.



"Tell-Tale" Piston Chuck in Position on Lathe.

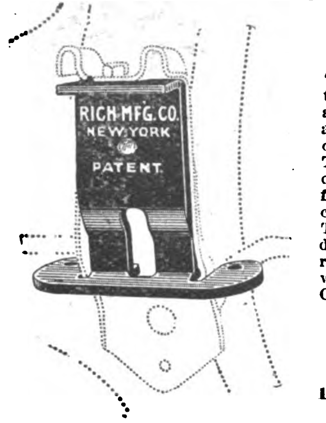
The "Tell-Tale" Piston Chuck will take all sizes of pistons without removing the connecting rods from the pistons. It is designed for trueing piston ring grooves, so that over width rings may be fitted. It can be used on any lathe, is easy to operate, simple in construction, cannot fail and will last for years. It will earn its cost in the first two jobs. It can also be used for turning and grooving rough cast pistons.

JOBBERS AND DEALERS.

The Tell-Tale line is a record business getter. Why not specialize in 100% time and labor saving tools and equipment. It is easy to sell and every Tell-Tale sale represents a big profit to the dealer and satisfaction to the purchaser. They bring business because they are practical tools in any shop wherever auto repair work is done.
Send for catalogue showing our complete line. Trade discount sheets at request.

S. D. HARTOG
Manufacturing Co.
2636 LOCUST STREET, ST. LOUIS, MO.,
U. S. A.

"RICO" RE-INFORCEMENT BRACKETS



For Ford Crank Cases

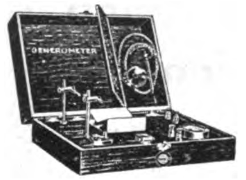
"Rico" brackets prevent the vibration which causes the crank case arms to break. The "Rico" is just as effective when attached, after the crank case arms have been broken. The "Rico" brackets are easily and quickly attached and nothing but a few bolts are necessary. Any one can do the work.

Thousands of these arms break daily. The "Rico" insures against repair bills, delay and vibration that weakens the engine.

Can better car insurance be bought?

List Price $3 per pair.

Rich Manufacturing Company
1777 Broadway, New York City.



GENEROMETER

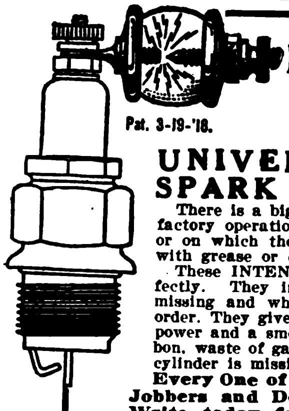
The new and practical generator testing instrument. It will locate shorts and grounds in generator armatures where most of the trouble is of a Lighting System. You will need this instrument if you want to be 100% efficient in your electrical repair work. Further particulars upon request.

PAUL G. NIEHOFF & CO., INC.
232 E. Ohio Street, Chicago, Ill.

Niehoff Laminated Magnetizer

This is the most scientific and practical Magnetizer ever constructed. It will magnetize any size magnet from a Ford to all the various other magnets used on the different cars today. Due to the fact that it generates an enormous amount of magnetism, with a pulling power of about 75 pounds, you can more quickly remagnetize a magnet, and, therefore save much current. All magnetizers are subject to considerable wear. The faces will wear down according to their use. The top pieces of our Magnetizer are especially hardened and also detachable so that when worn down they may be replaced at a very small expense. We have two types; one for 6 volt storage battery and another for 110 volt D. C. current. Write for further information.

PAUL G. NIEHOFF & CO., INC.
232 E. Ohio Street, Chicago, Ill.



Puts New Life Into Old Spark Plugs

when equipped with

UNIVERSAL OR MARVEL SPARK PLUG INTENSIFIERS

There is a big demand for a device that insures satisfactory operation from spark plugs which are worn out or on which the insulation is broken; or a plug fouled with grease or carbon.

These INTENSIFIERS will make such plugs fire perfectly. They indicate instantly whether a cylinder is missing and whether the ignition system is in perfect order. They give the spark more energy—producing more power and a smooth running motor. They eliminate carbon, waste of gas, cleaning the plugs and guessing which cylinder is missing.

Every One of Your Customers Will Want Them Jobbers and Dealers—Your profit is liberal. Write today for our attractive proposition.

UNIVERSAL MFG. & SALES CO.
Dept. 8. 552 W. Harrison St., Chicago, Ill.

Do Tiring Repairing

—but use only the most approved outfits

AKRON-WILLIAMS
A-W
PRODUCTS

Akron-Williams

TIRE REPAIR EQUIPMENT

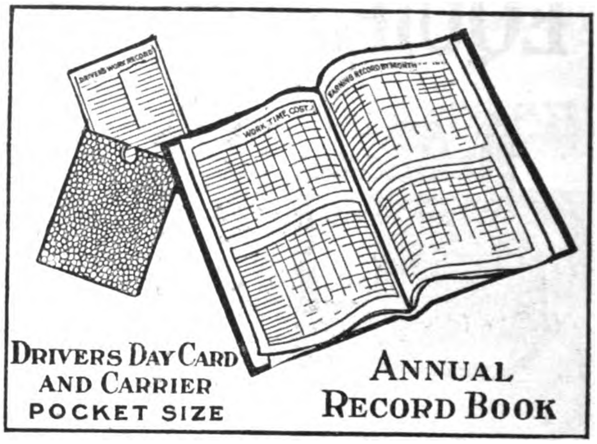
Designed with the help of the foremost tire engineers; used, recommended and sold by all leading tire companies.

An outfit for every size shop—send for new descriptive catalog.

The Williams Foundry & Machine Co.
Ash Street, Akron, Ohio.

A Business Man Must Know His Operating Costs

Very few truck owners know what it costs to operate their trucks. Hardly any know what their vehicles actually earn.



Send us $6 and we will ship by express collect a complete motor truck record system. This includes as well an annual subscription to MOTOR TRUCK, the leading authority on highway haulage.

This system includes an annual record book, 350 day cards and a driver's carrier for the day cards. The system is complete and good for one year. Nothing more is needed or necessary.

No need to ask for details. All instructions are supplied with the system. It will fit in any business, good for any make or type of truck and it is 100% efficient.

Anyone can start and maintain this system. A girl or boy clerk can keep the records of one or 100 vehicles. One simple form that you can buy or have printed would cost more than $6.

If you want to keep a POSITIVE detailed record of your truck costs and a POSITIVE detailed record of your truck earnings, this is the one complete, simple, practical and almost self-operating system compiled.

Why not start today and operate your trucks on a business basis. You never can do this until you KNOW your costs.

Record Department

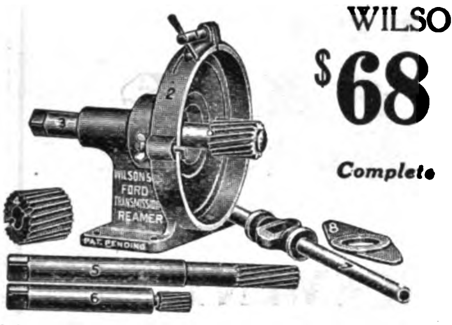
MOTOR TRUCK

Pawtucket, Rhode Island.

SAVE 2-3ds of your labor costs on every job

AND DO THE WORK BETTER THAN THE BEST THAT EVER WENT OUT OF YOUR SHOP

WILSON'S TRANSMISSION BUSHING REAMING MACHINE



$68 Complete

Remanufactures a Transmission complete in 30 minutes

Does the work much better than any other known method. All gears revolve perfectly and without noise and excessive wear. This outfit eliminates all guesswork; ordinary men do better work than experts can do without it.

FIGURE YOUR PRESENT COST ON THIS OPERATION

then compare it with 30 minutes our way and see how much money (in labor) you are losing on every job. All Reamers of highest grade and guaranteed indefinitely. Thousands of these outfits in use by largest Ford agencies. If you want references, I can refer you to some Ford agent or repairman you know who has an outfit.

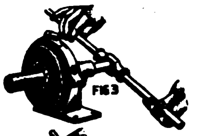


FIG 3

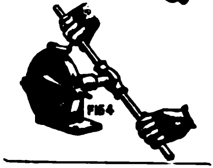


FIG 4

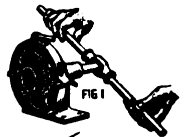


FIG 1

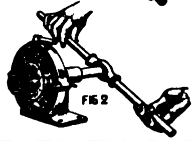


FIG 2

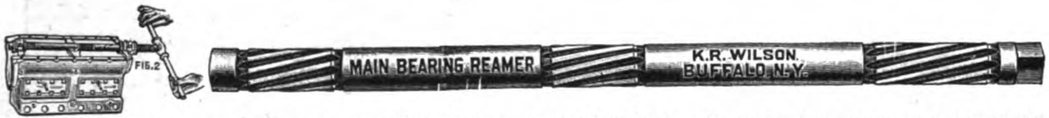
WILSON'S REAR AXLE PINION GEAR PRESS

takes off or puts on the tightest gear with ease. No hammering or damaging parts. Saves 75% of time usually required. Leverage 168 to 1. Nothing like it on the market and no substitute as good. Shipping weight 60 pounds.

K. R. WILSON BUFFALO N.Y.
3
7

$20

Wilson's Main Bearing & Connecting Rod Aligning Reamer



$28.00

"A day's job done in half an hour." 30 minutes to perfectly fit all main bearings and connecting rods. Better than you can do it by any other method.

Pilots guide the reamer. No chance to make mistake. Fig. 2 shows reamer cutting No. 1 and 3 bearings down to match the center bearing, which is always low and out of line. Then ream with all three in place, giving perfect alignment. No other reamer like it. Results impossible without the pilots and spiral flutes. Fig. 1, fitting connecting rods. First micrometer each of the throws. If less than 6-1000ths undersize, shaft is still serviceable. File off cap and tighten up bolts to fit pilot in usual way, as shown. Then release one nut about half turn for each 5-1000ths wear of the throw, and ream when fitted to shaft and both bolts tight it will be a perfect bearing fitting entire length and width. Far superior to any other known method. Motors put up this way can be started by hand.

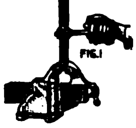
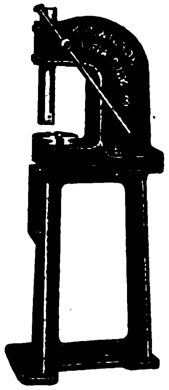


FIG. 1



ARBOR PRESS

for all Ford work other than axle shafts. Height of stand, 30 inches. Diameter of work, 11½ inches. Ram, 1½x1½x17 inches. Leverage, 46-1. A very useful tool in every Ford shop. Price with stand, $45. Less stand, $25.

VALVE-IN-HEAD CYLINDER HEAD.

Guaranteed to give more power than you can handle. Price less than $60 complete. Circular, etc., ready Feb. 20th.

(Sample at Boston Show.)

CAMSHAFT ALIGNING REAMER, $10.

Aligns bronze bushing with cast iron bearings. Ready for delivery.

TRIPLE GEAR RIVETING JIG, $4.

Puts new life in triple gears. Ready for delivery now.

WILSON STANDARD RADIATORS.

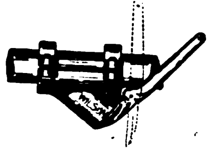
Honeycomb cores, reinforced tanks and side walls. Tanks guaranteed to support weight of 250 pound man without denting. Core has four times cooling surface of other radiators. Easy to repair if frozen. Side walls support radiator around its entire circumference instead of localizing support on end of bottom tanks. All weak points of other radiators have been eliminated. Sell at same price as Ford. Dealers' net cost, singly, $21 f. o. b our factory. Lots of 5, $19.

See sample at Auto Shows.

SEE US AT
BOSTON SHOW

Wilson's Safety Valve Cut-Out.

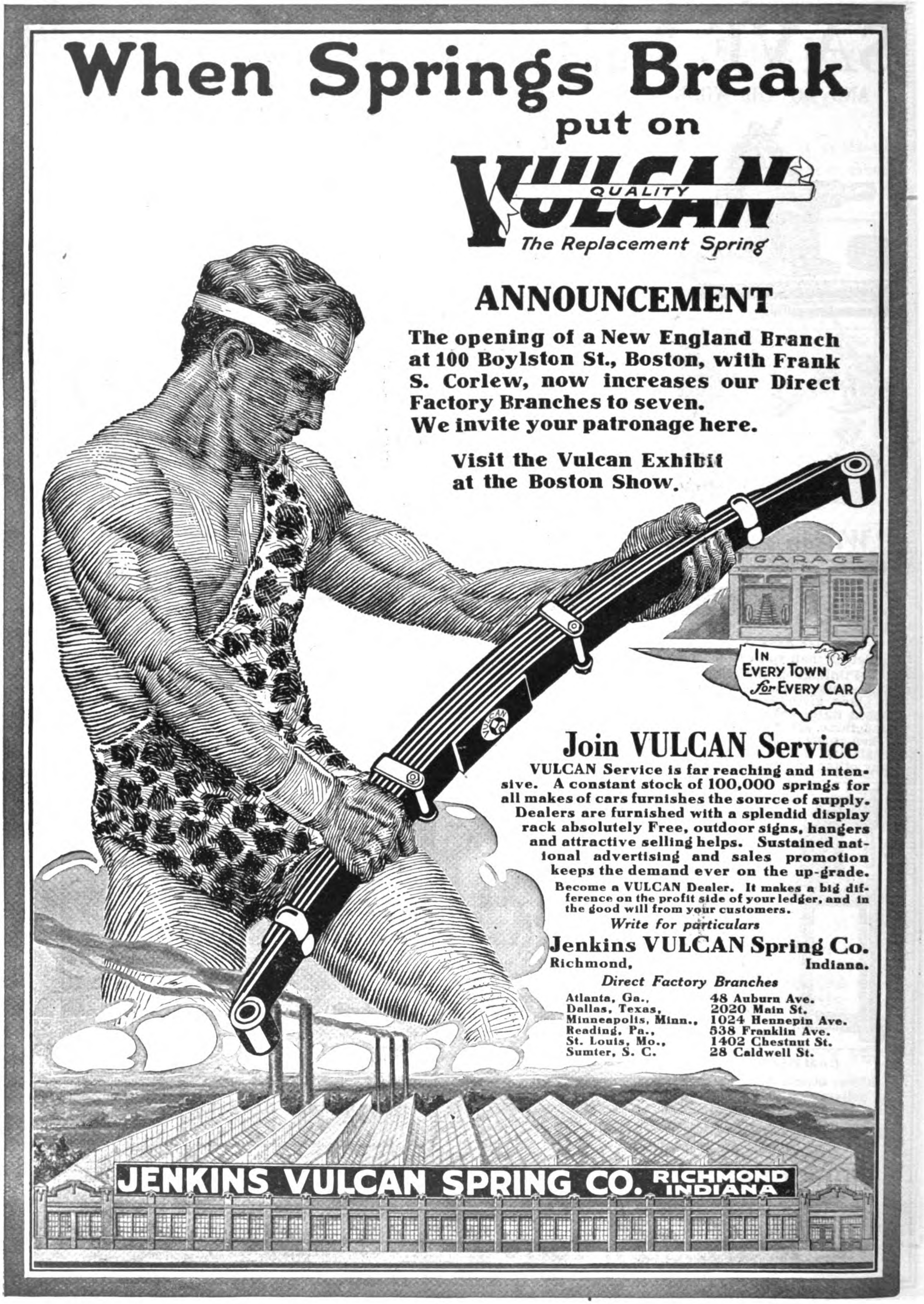
Improved Design Not Shown.



My Prices Talk.

GET MY CATALOG IT SHOWS HOW TO MAKE MORE MONEY THAN YOU EVER THOT COULD BE MADE ON REPAIR WORK

K. R. WILSON, 10-16 Lock St. Buffalo, N. Y.


GARAGE
IN EVERY TOWN for EVERY CAR
VULCAN
JENKINS VULCAN SPRING CO. RICHMOND INDIANA

When Springs Break

put on

VULCAN QUALITY

The Replacement Spring

ANNOUNCEMENT

The opening of a New England Branch at 100 Boylston St., Boston, with Frank S. Corlew, now increases our Direct Factory Branches to seven. We invite your patronage here.

Visit the Vulcan Exhibit at the Boston Show.

Join VULCAN Service

VULCAN Service is far reaching and intensive. A constant stock of 100,000 springs for all makes of cars furnishes the source of supply. Dealers are furnished with a splendid display rack absolutely Free, outdoor signs, hangers and attractive selling helps. Sustained national advertising and sales promotion keeps the demand ever on the up-grade.

Become a VULCAN Dealer. It makes a big difference on the profit side of your ledger, and in the good will from your customers.

Write for particulars

Jenkins VULCAN Spring Co.
Richmond, Indiana.

Direct Factory Branches

Atlanta, Ga.,	48 Auburn Ave.
Dallas, Texas,	2020 Main St.
Minneapolis, Minn.,	1024 Hennepin Ave.
Reading, Pa.,	538 Franklin Ave.
St. Louis, Mo.,	1402 Chestnut St.
Sumter, S. C.	28 Caldwell St.

Boston Show Number

AUTOMOBILE JOURNAL

MAILED MARCH 12th, 1919

BOSTON SHOW

Held March 15th to 22nd (inclusive)

PRACTICALLY all lines shown at this display will be advertised in this issue. The Journal is an A B C certified quality Trade Journal. It blankets the whole field from which this great display will draw its patronage.

The Boston Show has always been the largest national display of the kind held in America. In this number advertisers can reach all the New England trade and close to 20,000 owners. The show marks the beginning of the active buying and selling season in these states (the greatest motor vehicle and accessory market in the United States).

Boston Show Number

The MOTOR TRUCK
Devoted to Motor Driven Business Vehicles of All Classes.

MAILED MARCH 12th, 1919

The Boston Truck dealers will hold more than a hundred show room and service station displays during the week of the show. They plan to reach every prospect visiting Boston during the display. Make demonstrations of trucks and equipment in a practical way. The most representative line of truck and equipment advertising ever published will be carried in the show number of the Motor Truck.

RUSH COPY. — WIRE RESERVATIONS.

Office of Publication, Pawtucket, Rhode Island.

In boxes

In rolls

WEST OF ROCKIES $2.25 Per Set
IN CANADA $3.00 Per Set
$2.00 PER SET
ADVANCE
White Stripe
TRANSMISSION LINING for FORD CARS
White Stripe TRANSMISSION LINING for FORD CARS

"Next Best to Cork Insert"

This superior plain lining for FORDS supplies the *strong demand* for something better

The White Stripe Process keeps lining soft for longer, better service

Ordinary transmission lining used in Fords soon becomes hard and polished. Scalding oil, constant pressure, and burning friction destroy its efficiency. But "WHITE STRIPE" LINING **stays soft** — retains its efficiency for an unusually long time. It is impervious to the action of hot oil. Each fibre is impregnated by a new and secret treatment, discovered and applied by the Advance engineers. "White Stripe" insures better service and longer service — it is the most perfect plain transmission fabric ever produced.

The only plain lining that's different—superior and easy to identify

Ford owners have been wanting a better, plain transmission lining. The trade has long felt this demand. To identify every foot of White Stripe Lining so it can be instantly recognized as the genuine, whether bought in the box or from the roll, we mark every inch of "White Stripe" with the distinguishing stripe of white.

"White Stripe" Lining is giving complete satisfaction on thousands of Fords. It is giving longer service. It is making better working Fords. It is backed by the same kind of dominating, persistent advertising that has made Cork Insert a big, dependable seller.

In boxes **$2 per set of 3**
Rockies West, $2.25: Canada, $3

In rolls **32 cents per foot**
Rockies West, 35c Canada, 40c

Advance Automobile Accessories Corporation
Dept. B-3 56 East Randolph Street, Chicago, Ill.

White Stripe TRANSMISSION LINING *for* FORD CARS

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., FEBRUARY, 1919 No. 10

BOSTON'S BIGGEST AUTO SHOW

Certain of the Best Displays of Cars and Accessories of the Year and Extremely Large Volume of Sales—Record Breaking Buying Is Expected.

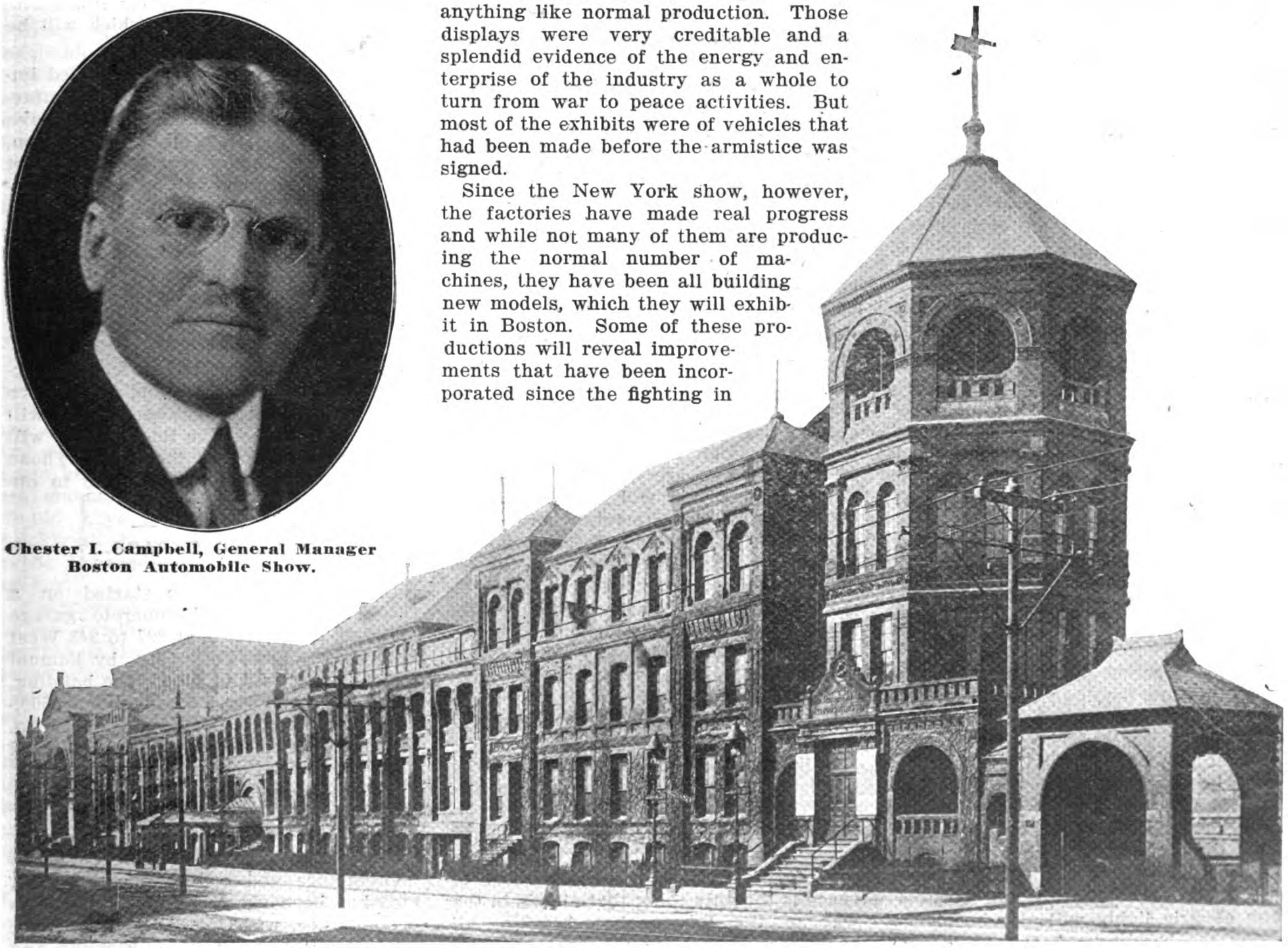
HAVING every promise of being the most important motor vehicle exposition in the United States this year, the 17th annual Boston Automobile Show will be held in Mechanics' Building, Huntington avenue, March 15-22. The Boston show is destined to take premier importance because here, for the first time since the war ended, the manufacturers will be in a position to exhibit their post-war product.

Chester I. Campbell, General Manager Boston Automobile Show.

The Chicago and the New York shows came so soon after the armistice that the factories had no time to get back to anything like normal production. Those displays were very creditable and a splendid evidence of the energy and enterprise of the industry as a whole to turn from war to peace activities. But most of the exhibits were of vehicles that had been made before the armistice was signed.

Since the New York show, however, the factories have made real progress and while not many of them are producing the normal number of machines, they have been all building new models, which they will exhibit in Boston. Some of these productions will reveal improvements that have been incorporated since the fighting in Europe ended and will reflect lessons learned by war experience.

The show will consist of passenger cars and accessories, because the basement of the building could not be obtained for the usual display of trucks, and there will be approximately 70 different makes of cars



Mechanics' Hall, Huntington Avenue, Boston, Where the 17th Annual Automobile Show Will Take Place March 15-22.

and about 250 different accessory exhibits.

Large Demand for Cars.

The scarcity of new automobiles this spring will result in the reaping of a harvest for the motor car accessory dealer. It is quite clear that the accessory dealer is going to make the most of this opportunity. The accessory department at a Boston show is always a place of wonder to those who own cars or are connected with the automobile business.

This department is expected to prove unusually interesting this year, for it will contain a large number of new devices that are designed to add to the comfort and convenience of the motor car. The accessory department always gives a foretaste of improvements that are to come and this year's show will be more notable than any of its predecessors in that respect.

It will be noted in the cases of many of the standard accessories to be displayed that they will reveal the direct influence of use in warfare at the front. Many features and forms of construction which were sufficiently sturdy for civil uses were found too light and not strong enough for the rigors of service in the war zone.

The popularity of the closed passenger car for all-year-round use continues to grow and for this reason many refinements and accessories will be noted that are applicable to the limousine and the coupe. Various anti-rattling devices will be found to keep the windows from rattling and to eliminate body squeaks. Heaters of greatly improved designs, using hot exhaust gases, will also be shown.

There will be many priming devices to facilitate starting at low temperatures, most of these being controlled from the dash. Many of them work on new principles or have their original designs considerably modified. Among the more recent accessories will be found condensers for the cooling system.

Show Will Equal the Best.

Manager Chester I. Campbell will again be at the helm, a fact that will assure motorists that the character of the show will be equal to the extremely high Boston standard. He predicts that all attendance records will be greatly exceeded. The show will be held under the auspices of the Boston Automobile Dealers' Association.

The Boston dealers are in a very happy mood this year, as the wonderfully mild winter weather resulted in a tremendous early demand for cars. Dealers, garage men and others interested in automobiles will attend from all parts of New England. This section of the country is a most important factor in the automobile world. There are nearly 4000 automobile firms in New England.

Mechanics' building will be transformed into one mass of color and lights. It will be the most gorgeous setting that E. W. Campbell, the designer, has ever arranged for an automobile show. The motif will be both original and new and the effect at once beautiful and dazzling. Many electric lights will also be placed outside the building. A special feature will be the musical programs. Well known bands and orchestras will play afternoon and evening and there will also be vaudeville numbers, this being an original feature for automotive exhibitions.

All of the Boston automobile shows have been held in Mechanics' Hall except the one in 1903, which took place in Symphony Hall.

No Overflow Into Other Halls.

Manager Campbell having decided not to conduct an overflow show at Horticultural Hall this year, advantage was taken of its being idle to hold a reconstructed car show under the management of George B. Cousins. He has taken over the entire space there to exhibit reconstructed cars of many well known makes.

The Black & Decker Manufacturing Co., Baltimore, Md., will exhibit at the Boston Automobile Show its specialized line of portable electric drills, lectroflater electric air compressors and, in addition to its regular line, a new air cooled, ball bearing electric valve grinder with a 1/6 horsepower motor, which operates, as do all B & D electric motor driven devices, on both alternating current, 25 to 60 cycles, and direct current. This tool has the patented "pistol grip and trigger switch," which has so popularized the Black & Decker portable electric drills, and the price is set at $45. A new lectroflater horizontal portable tank outfit will also be exhibited.

The display of cars will emphasize, as did the New York and Chicago shows, that the custom made body is coming into its own. Many of the buyers of expensive cars insist upon bodies of their own design. The special body, however, is not confined exclusively to the high priced cars, for a number of body concerns have come forth in the past year with designs for the cheaper cars that give them a decidedly smart and distinctive appearance. To these are added over-sized tires, wire wheels and special equipment, all tending to refine the lines.

Bodies and Accessories a Feature.

The regular standard bodies will reveal many new effects, and the body display is bound to be a very important outstanding feature of the exhibition. The accessory department will be a close competitor for high honors, and thousands of persons who are considering buying new cars this year will have a vital interest in this department, where every known device that tends to make motoring more comfortable, cuts down the expense and saves labor, will be shown.

Manufacturers of cars and their engineers obtained many excellent ideas in connection with the displays at the New York and Chicago shows, and they have improved their own models as a result. These improvements will be reflected at the Boston show.

It is expected that an unusually large number of sales will be made on the floor this year. The exhibitors are greatly enthusiastic and optimistic. They agree that the show should go "over the top" in wonderful style. The lack of space is the only thing that stands in the way of the Boston show breaking all show records. Manager Campbell had to refuse the applications of many would-be exhibitors because of the space limitations.

The truck men do not propose to slumber during the show. Many of them will have their individual shows in their own sales rooms during the week and the show management will cooperate with them. Information about the locations of truck dealers and how to reach them easily will be given at the show.

Will Have the Usual Features.

The show will be opened Saturday, March 15, and it will be concluded the evening of March 22, this being in keeping with the usual custom of the management of having a Sunday intervene. Since the inauguration of the Boston exhibition Wednesday of the week has been designated as "Society Day," when increased admission is charged and there is expectation of the presence of thousands of those who give over this day to a visit to the show. This custom will no doubt be followed this year, although there has been no specific announcement.

During the week there will be numerous meetings of organizations identified with the industry, the trade and with individual concerns. Many of the manufacturers will have gatherings of their sales representatives with the sales managers and the New England distributors, at which production plans will be considered and the activities of each organization will be determined so far as possible. These will have various social features and entertainments, which will be arranged at the various hotels.

These conferences will have added importance this year because the manufacturers and sales managers will have definite knowledge of their production, resources and organizations, and at least the majority of them will be able to specify their activities. One factor that will interest every tradesman is the matter of deliveries, for the demands have been made upon them much earlier than in previous years and logically business will depend in no small measure upon the production.

All in all the Boston show has wonderful promise for business and the dealers who understand conditions best will profit very largely. The Boston show will be the melting pot for the trade. Those who want business will be able to obtain it at the exhibition.

BUILDING GARAGE.

Construction has been started on a three-story steel and concrete garage building, 225 by 100.5, at 227 to 243 West 61st street, New York City, by Samuel Rosenblum, civil engineer. The building, which represents a deal involving $500,000, is one which the Orteig Motor Co. purchased from plans of the Standard Concrete Steel Company.

CHARTER TIRE COMPANY.

The Hartig Tire and Rubber Co., to manufacture and sell automobile tires, etc., has been chartered under the laws of Delaware, with $50,000 capitalization, by Louis Hartig, Jr., F. J. Fickling and A. C. Jones, Washington, D. C.

AUTOMOBILE AND ACCESSORY TRADE PROFITABLE FIELD FOR BUSINESS MEN

Sale of Vehicles, Equipment and Parts and Service to Owners Will Yield Substantial Profits to Those Who Adopt Progressive Merchandizing Policies

CORDIAL welcome always greets the event of a good business man into the automobile trade, and success is reasonably certain to be his if he applies his whole energy and ability to the undertaking. Selling automobiles, their parts and accessories is a merchandising proposition pure and simple, but it is particularly fascinating. To the successful it brings substantial remuneration.

Although its activities were begun hardly more than a score of years ago, the automobile trade has attained remarkable development. Its investments aggregate many millions of dollars, and it has engaged some of the most brilliant minds of the two continents. Each year sees it forging ahead with increasing possibilities.

This field is constantly attracting big men. The bigger the man the greater his opportunity. It is a dignified calling in which any man might well be proud to be engaged.

Some men who probably would make a success in the automobile business hesitate to enter it because of lack of mechanical knowledge. While it is highly desirable and really necessary to know automobile mechanics, one may succeed without much technical knowledge concerning the manufacture and construction of cars.

Men who have little idea as to the way hats are manufactured are able to succeed in selling hats; a man knowing practically nothing about shoe machinery can conduct a first class shoe store. And so it follows a person knowing comparatively little about automobile engineering can sell automobiles.

Automobile Knowledge Obtainable.

The automobile knowledge necessary may be easily acquired. All automobiles are constructed on the same principle, and when a person knows how one car is made he has a good idea how all others are manufactured. An intelligent man should have no difficulty in obtaining quickly all the mechanical knowledge he needs to conduct an automobile sales agency.

Automobiles are now practically a perfected product, and the new models brought on the market are as good or improvements on the old standard makes. There is no longer a gamble as to the worth of a machine.

More necessary than mechanical learning is salesmanship and general business ability. A man who is able to conduct a bank, drygoods store or other business enterprise should have no fear he cannot make good selling automobiles.

No longer is the automobile considered a luxury. It is a real necessity. Even the term "pleasure car" has been relegated, because a person no longer buys a car for pleasure, but purchases it just as he would purchase so much transportation. The farmer, the doctor, the real estate agent and professional man, and, in fact, those engaged in all lines of endeavor have awakened to the realization that the automobile is an investment that yields dividends.

Wage earners, who a few years ago never thought of owning an automobile, now drive around in their own vehicles. Even the actor no longer "hits the railroad ties" when going from town to town, but makes the trip in his own sporty car.

Demand for Automobiles Universal.

In fact, the demand for automobiles has become universal. Everyone wants an automobile, everyone is a prospective buyer and the possibilities from a sales standpoint surpass those in almost every other business.

An automobile dealer who conducts his business in accordance with proper standards has a very fair chance of becoming prosperous. If he takes advantage of the opportunities offered him he will probably succeed.

Until recent years the dealers depended almost entirely upon the sale of passenger cars. Today the demand for freight vehicles is so great that many dealers sell trucks. There is also a good profit in handling accessories.

Manufacturers are always on the alert for new agencies, and they cooperate with reliable men who desire to sell their vehicles. A person planning to start an agency should write to or visit some of the manufacturers, a list of whom may be found in a public library. The trade press will give any information asked of it.

It is best to negotiate with a manufacturer who has made a good reputation and whose financial strength is such that he stands back of his car. A well known car, one that is properly advertised, has great advantages from a sales point.

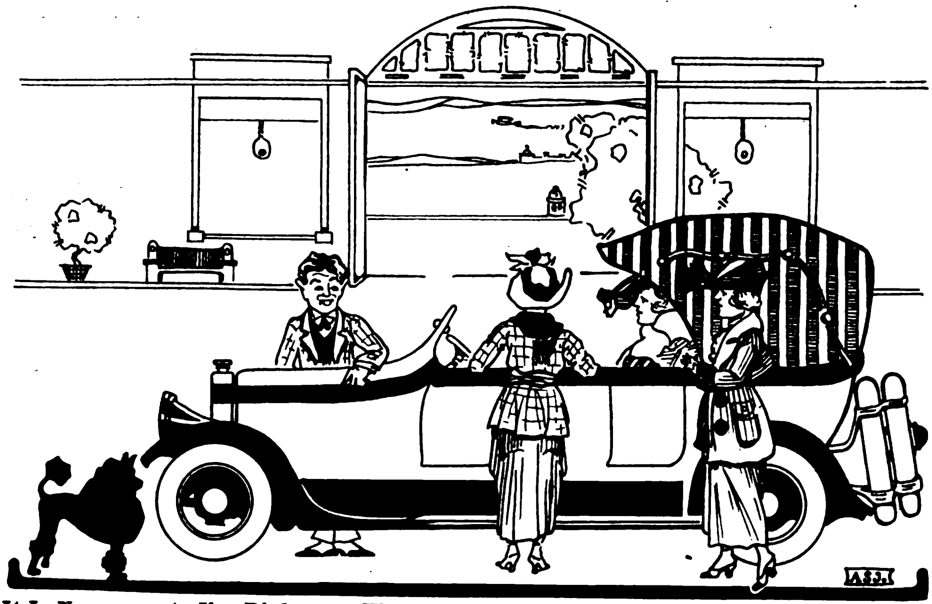
Acquisition of Agency Territory.

The sales management of a responsible automobile manufacturing company will not encourage a man to invest in business in any territory where reasonable returns on the sales of its car are not to be expected. The sales department, having made a country wide survey, has a good idea of the approximate number of its cars which should be sold in any city or town.

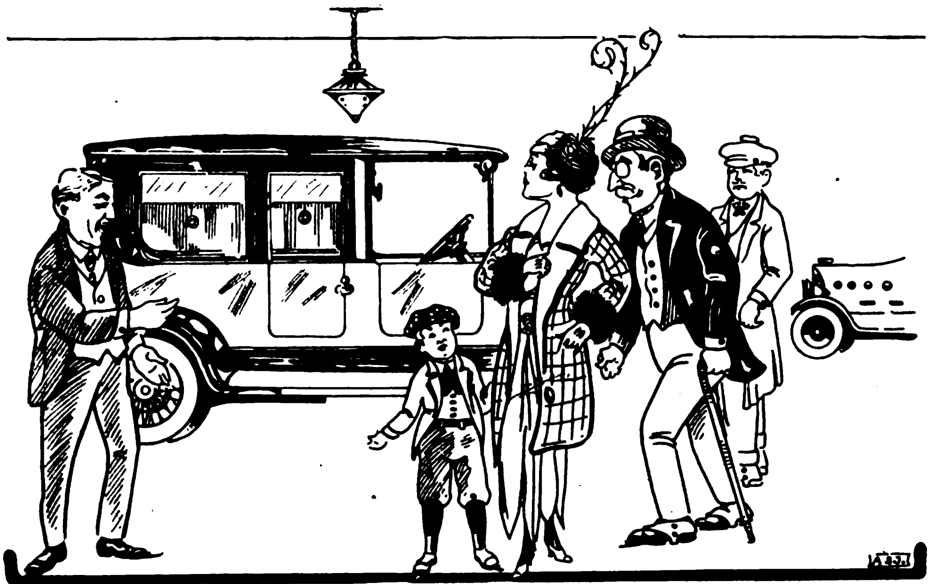
Methods of buying cars from the manufacturers differ from those employed in buying goods in most other industries. The dealer and manufacturer agree on the number of cars that should be disposed of in the dealer's territory in a given time, and the dealer gives the manufacturer his order for this quota, to be delivered at stated intervals. Often a sight draft is attached to a bill of lading, and the dealer has to meet this when the cars reach him.

There is a "list price" for each car, and this is the price at which it is sold by the dealer. Suppose the "list price" is $1000, then the dealer may pay the manufacturer $600 for the car. The difference of $400 represents the dealer's gross commission. Automobiles are usually sold f. o. b. at the place of manufacture, the dealer adding the cost of freight to the "list price" when he makes a sale.

The amount of commissions to a dealer varies. Twenty per cent. may be allowed.



It Is Necessary to Use Diplomacy When Dealing with Women Prospective Buyers. They Are Apt to Judge a Car Almost Wholly by Its Appearance.



The Entire Family May Have Something to Say in Connection with the Purchase of an Automobile, and, Therefore, All of Them Should Be Taken Into Consideration by the Dealer.

Naturally the better a car is known the smaller will be the dealer's commission, as its sale will be more easily made than that of a car little known. If a dealer handles a new automobile he must necessarily spend considerable money in missionary work, so that he will have to get a bigger margin of profit.

The local dealer finances, equips and maintains his own establishment, which may consist simply of a sales room, or possibly a sales room with garage and storage space. Many big dealers operate extensive "service stations." In these stations repair work is done and equipment and parts for the car handled by the agency are carried in stock.

The manufacturer attends to the national advertising. Manufacturer and dealer agree as to payment for the local advertising, but usually the dealer has to pay for most of this. A manufacturer may allow a certain amount of money for local advertising for every car sold in a district.

The dealer must sell his full quota of cars for his territory, if he is to continue to retain the exclusive agency, unless he can make other arrangements with the manufacturer.

Locating an agency in the home town has great advantages, such as knowing the people there, their customs and needs. Having their confidence is a big factor. If a prospective dealer thinks of locating in a city other than his own he should first make a careful survey of conditions there. His business judgment should guide him.

May Sell One or Several Makes.

A dealer may agree to handle one car exclusively, or he may handle a number of makes. He must first buy the cars he is going to sell, and the reasons that lead him to make these purchases should provide his selling arguments.

It is advisable to select, if possible, the highest quality car having the proper price to fit the largest number of possible purchasers in the territory in which it is to be sold. Unless one gets the agency for a car with a moderate list price, or a machine that will permit him to devote his whole time with the assurance of a fair income, it is best to secure representation for two or three cars.

Select the car having all the qualities that you know to be good and in which you have confidence. Study the looks and mechanical features, for both of these must be good in any car you sell. Women have much to do in the selection of a car, and they are impressed largely by appearance. The whole family may have something to say in the buying of a car.

The riding qualities, comfort, accessibility and equipment should be considered. Certain companies are recognized as giving the most for the money. They lead in improvements and have good service policies. The greatest market is for cars selling between $500 and $1000, the next for cars from $1000 up. In the agricultural districts cars ranging from $500 to $1500 are the most commonly sold.

It is undesirable to get too much territory, as one's quota of cars may then be greater than he can sell. It is best to select a compact territory, and then comb it thoroughly.

Select Car Before Territory.

Decide definitely just what cars are to be handled before choosing the location for the agency quarters. If high priced automobiles are to be sold, the location for the sales room should be such that persons who buy these cars will be willing to visit it. It is highly desirable to have an up-to-date place with proper surroundings.

In handling a low priced car one does not have to be quite so particular as to location, but it should be borne in mind that the better the location the greater the possibilities of sales. The building for the agency should be arranged to permit the utmost efficiency. It is worth while to visit other agencies to get the advantage of their ideas.

A corner location permits an entrance to the garage from a side street. The sales room should be a bright room, with large windows, permitting the cars to be seen from the sidewalk.

Used cars, which are taken in as part payment on new cars, have become a big problem, and considerable space is usually required for them.

Organization.

In building up an organization the first step should be to select the man who is to be your assistant. He should know the automobile business. Select a man whose honesty and loyalty will not be questioned. He will guide in selecting other employees. His knowledge of the business should prove a guard from common pitfalls.

The most successful men in the automobile trade are usually men who have enthusiasm, and who can and like to meet people. Regarding mechanics, experience has demonstrated that expert workmen are cheaper in the long run than poor mechanics.

The dealer should keep in close touch with the foreman of the repair department, to see that everything there is conducted properly.

(Continued on Page 50.)

A Person Entering the Sales Room Should Be Met at the Door by a Salesman with a Pleasant Greeting, Making the Visitor Feel That He Is Welcome.

LONDON ACCESSORIES AGENT VISITS THIS COUNTRY.

H. K. Larkin of the firm of Stanley J. Watson of London, England, agent for the Eisemann Magneto Co., the Federal Bearings Co., etc., is visiting the United States, and will be located at his New York office, 220 Broadway, room 714, and at the Woodward Hotel. He desires to get in touch with firms desiring representation in England for motor accessories, etc.

UNITED BRASS AND ALUMINUM HAS REORGANIZATION.

The plant of the United Brass and Aluminum Manufacturing Co., Port Huron, Mich., has been extended and is now making brass bushings for the Packard, Northway Motors Co. and other concerns. There has been a reorganization, with these officers: President, Jacob Goldman; vice president, H. S. Grant; secretary and treasurer, Shirley Stewart, and Albert Ryan general manager. This concern was formerly the William O. Lee Co.

NELSON MOTOR TRUCK CO. IS NOW INCORPORATED.

The Nelson Motor Truck Co., Saginaw, Mich., manufacturer of Jumbo truck, has changed from a copartnership to an incorporation, with $500,000 capitalization. The officers are: President and general manager, H. B. Nelson; vice president, J. J. Nelson; secretary and treasurer, C. J. Nelson. Twelve hundred trucks are to be made this year.

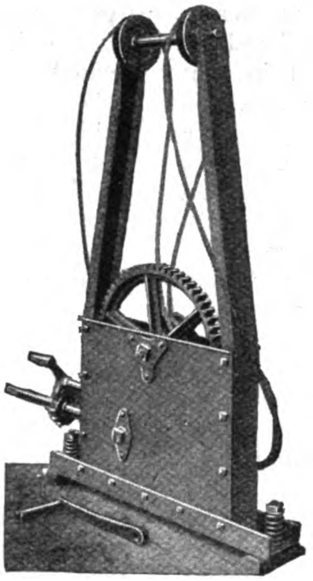
WILCOX RETURNS TO COMMERCE COMPANY.

Maj. George D. Wilcox has returned as director to the Commerce Motor Car Co., Detroit, in charge of sales and advertising, following his discharge from the Quartermaster Corps, where he commanded the Detroit District of the Motors Division.

Maj. George D. Wilcox, Director of Sales and Advertising, Commerce Motor Car Co.

COLUMBIAN LIGHTNING HOIST FOR DUMP TRUCKS.

In the Columbian "Lightning Hoist" the main objection to manual equipment —the uncertainty of practical operation by one man—has been overcome. The Columbian hoist has been perfected after years of labor and experience, and with it a man can discharge a load from a gravity discharge body as rapidly as with a power driven hoist.



The Columbian "Lightning Hoist," Manually Operated, for Gravity Discharge Dump Trucks.

The Columbian hoist is composed of less parts than the ordinary apparatus, and is foolproof. The frame is made of rolled steel. The large gear and the drum are cast in one piece. The pinion is made of bronze. The hoist has a test capacity of 30,000 pounds. It will handle with ease a five-ton load and elevate the load to maximum height.

The hoist is so constructed that it will fit any chassis or frame. It is designed on the principle of geared wheels. The appearance is attractive. It is especially valuable for such firms as coal companies, contractors, sand, crushed rock companies, etc., as it facilitates unloading and getting away, saving time and labor.

The hoist is manufactured by the Columbian Steel Tank Co., 1601-21 West 12th street, Kansas City, Mo.

BIG CAPITAL FOR MUSKEGON TRUCK COMPANY.

A charter has been filed in Delaware for the Muskegon Truck Co. by C. E. Johnson, Muskegon, Mich.; Joseph Tozelaar, Grand Rapids, Mich., and H. L. Schuh, Lowell, Mich., with capital of $4,325,000.

CASS GOES TO GARFORD TRUCK.

J. M. Cass is now advertising manager of the Garford Motor Truck Co., Lima, O. He was formerly sales and advertising manager of the United Motors Co.

WOULD HAVE TRUCKS AND TRAILERS SHOW TONNAGE.

A bill pending in the New York Legislature would require automobile trucks and trailers to show the tonnage of such vehicles in numerals, such numerals to be of the same size and to immediately precede the registration number and to be separated therefrom by a hyphen.

GRANT MOTOR EARNINGS FOR YEAR.

The Grant Motor Corporation, after paying the preferred dividends, which left a balance of more than 20 per cent. on common stock, had earnings of more than $450,000 for the year ended Dec. 31.

FRUEHAUF SAYS SEMI-TRAILERS CONSERVE MAN POWER.

"Every owner of a semi-trailer is firmly convinced that the semi-trailer conserves man power," says H. C. Fruehauf, sales manager of the Fruehauf Trailer Co., Detroit, Mich. "In the first place a two-ton truck and a six-ton semi-trailer will haul as large loads as three two-ton trucks. And but one driver is required, thus saving the wages of two drivers.

"Because modern trucks are limited in their carrying capacity is no reason to believe that larger loads cannot be hauled. We have demonstrated time and again that a semi-trailer will treble the carrying capacity of a motor truck.

"With economy the watchword, many manufacturers, contractors, lumber dealers and other business men are adopting semi-trailers not only because of the saving in wages that follows, but because of decreased operating expenses. We have fully substantiated our claims that a semi-trailer will reduce haulage costs from one-half to two-thirds.

H. C. Fruehauf, General Manager Fruehauf Trailer Co., Detroit.

"This is an important matter at the present time when a shortage of motor trucks is predicted and a high labor cost confronts the employer."

PLATE XXVII

GENERAL SERVICE STATION

A Three-Story Building, 50 by 100 Feet, on Corner Location, Arranged for Freight and Passenger Vehicle Storage, with Every Facility for Repair Work.

WHEN an automobile dealer who is to handle both passenger cars and trucks plans to erect a service station he is bound to be confronted with many problems. It is much simpler to plan a building that will be used for the handling of just passenger cars, or simply trucks, but when the structure has to serve both cars and trucks many unusual provisions have to be made if the building is to be laid out so that high grade service may be given. The architect has given due consideration to these requirements in his presentation of a layout that will combine essential features necessary for both trucks and cars.

The service station and salesroom for motor trucks and pleasure cars which is suggested ed in the accompanying sketches, would be up-to-date in every respect. A building of this type under present conditions could be built at an approximate cost of $35,000, and the elimination of some of the features would result in an appreciable reduction of this figure.

Very liberal provision is made for the used car department, as the entire third floor could be devoted exclusively to this purpose, if desired. Service stations are finding that they must provide extensive space for the used cars, as these have become such an important factor in business.

Possibly a dealer needing a building of about this size might find that he does not need so much space for his used car department. If so, he can readily find other uses for any part of the floor. Many purposes to which sections of the floor might be utilized will readily suggest themselves.

The architect's aim has been to picture a structure that would entirely meet the needs and desires of a progressive dealer who insists upon a thoroughly modern service station possessing every reasonable convenience and so designed that everything connected with his business may be done in a most practicable and efficient way.

A three-story building, with an area of 50 by 100, is shown. It is represented as being on a corner lot, as such a location for a large building devoted to the handling of trucks and passenger cars has many great advantages in its favor and is really essential.

The sketches show two plans and the front elevation, the third floor plan being omitted. The first floor is for motor trucks, with provision for openings and height. In the forward part is a large show room having a separate entrance from the street and also large show windows on both streets.

A large vestibule and stair hall are shown in the front of the building, and these lead to the second and third floors. Two service doors lead from the side street, as shown, opening into the storage department for trucks. Next is a wash-stand, followed in order by an elevator, which goes from the first to third floors.

Ample provision has been made for repairs, as can be seen from the large repair department shown. Adjoining the repair shop is a large machine shop, ready to handle anything from repairing parts to making them.

This would necessitate the installation of machine tools, such as lathes, a milling machine, a shaper, a drill press and a radial drill. Also provision may be made for a power saw. In a shop of this size these tools would be an absolute necessity in order that owners of cars may be given prompt and efficient service, obviating such delays as would be due to sending to the factory for parts to replace what could be repaired at the service station that is equipped with facilities to do restoration or even make new units if need be. A well planned machine shop is worthy of the consideration of anyone contemplating the construction and operation of an up-to-date service station.

The second floor has an office and women's room in front, and also a large storage section for the display and storage of passenger cars. At the rear is the elevator, also toilets, supply room and locker room. There are turntables on both the first and second floors.

As to the construction of the building, the foundation is of concrete, with super structure brick and steel. The floors are concrete, with steel floor beams, concrete reinforced. There is steel sash throughout. The service doors are automatic, raising out of the way to the ceiling.

General treatment of the outside bricks is with concrete trimmings, as shown. A rough texture brick with large white joint is suggested. Bricks may vary in color so as to give striking effects.

Heating by steam wall radiation is preferred. The heating plant would be in the basement under the machine shop, with stairway leading from the repair shop. Placing of lights and type is left to the discretion of the owner.

Such a structure would undoubtedly make an unusually good service station and sales room for motor trucks and passenger cars. The fact that the entire third floor could be reserved for the handling of used cars should prove an especially attractive feature.

There are several minor features that could be incorporated to suit the business of any individual dealer. Any further particulars desired will be gladly furnished upon request by the Architectural Department of this publication.

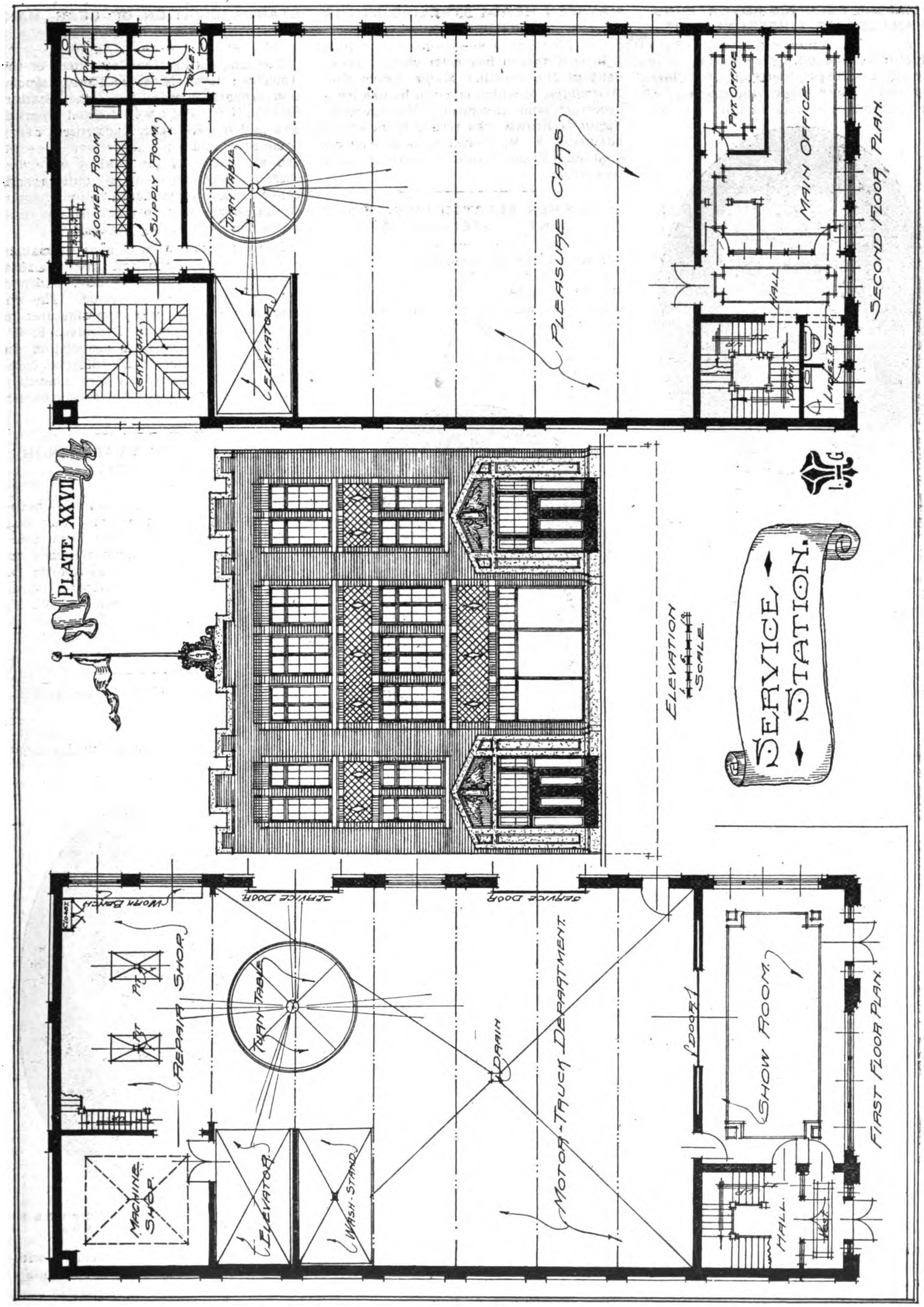


PLATE XXVII
SERVICE STATION.
SECOND FLOOR PLAN.
Locker Room
Supply Room
Toilet
Toilet
Turn Table
Skylight
Elevator
Pleasure Cars
Pvt. Office
Main Office
Hall
Ladies Toilet
Elevation
Scale
First Floor Plan.
Work Bench
Service Door
Service Door
Repair Shop
Pit
Pit
Turn-Table
Machine Shop
Elevator
Wash-Stand
Drain
Motor-Truck Department.
Door
Show Room.
Hall
Vest.

WEDDELL BECOMES ADVERTISING MANAGER OF FIRESTONE TIRE.

Justin R. Weddell, formerly sales manager of the Corday & Gross Co., Cleveland, has become advertising manager of the Firestone Tire and Lumber Co., Akron, O. More than 10 years ago he became connected with a large Chicago advertising agency and later went to the Barnes-Crosby Engraving Co., Chicago, and became manager of the Cleveland office of the company.

Justin R. Weddell, Advertising Manager, Firestone Tire and Rubber Co., Akron, O.

He developed the service of the company and established a reputation for unusually complete advertising and selling counsel. He then organized the Weddell-Schmidt Co., Cleveland, and this concern was merged with the Corday & Gross Co., and he became sales manager, which post he held for three years. He is a graduate of the New Mexico State College and Denison University.

WHITE IS PRESIDENT OF BAKER-R. & L. CO.

C. L. F. Wieber has resigned as president of the Baker-R. & L. Co., Cleveland, maker of Rauch & Lang electrics, Owen Magnetic gasoline cars and B-R. & L. electric industrial trucks and tractors. Mr. Wieber is now acting as chairman of the board. Fred R. White is now president. Manufacture of 4000 cars is planned for this year, but the largest increases will be in the body department and in industrial trucks.

BUYS CANADA SITE FOR FRAME PLANT.

The General Motors Corporation has bought a factory site of 37 acres in Windsor, Ont. The company is also to establish a new frame plant in Flint, Mich.

M. Ray Stehley has become branch manager in Brooklyn, N. Y., for the Reo Motor Car Co. He was formerly in charge of the Reo branch in New Rochelle, N. Y.

HAYSSEN HEADS STERLING MOTOR TRUCK CO.

R. G. Hayssen has been elected president of the Sterling Motor Truck Co., Milwaukee, of which concern he has been secretary and treasurer. He succeeds Victor L. Brown, who retires from active business. E. M. Sternberg is vice president and Frank Luick is secretary and treasurer.

KELLEHER ELECTED VICE PRESIDENT OF STENMAN CO.

Stockholders of the Stenman Electric Valve Grinder Co. at their annual meeting at the offices of the company in Worcester, Mass., elected J. J. Kelleher vice president and general manager. During the past year he has been sales manager. He will continue to direct the sales of the business and in addition will have entire charge of the factory.

J. J. Kelleher, Vice President Stenman Electric Valve Grinder Co.

The company reports that sales of its electric valve grinder have increased more than 100 per cent. since the armistice was signed.

At the New York show, in the Armory, a Stenman grinder was shown in operation, grinding the valves of a Ford motor.

ONEIDA SERVICE STATION IN NEW YORK COMPLETED.

The West Motor Co., Inc., eastern and export distributor for Oneida trucks, announces the completion of its service station, running from 19th to 20th street on Avenue B, New York City. The combined sales room, chassis storage and service department cover more than 40,000 square feet. The company was organized by Sidney J. West and others in 1913. It now wholesales Oneida trucks in 19 states and abroad.

The Atterbury Motor Car Co., Buffalo, N. Y., has increased its capital from $250,000 to $500,000.

STANDARDIZATION OF GEAR MAKING MAKES PROGRESS.

The Standardization Committee of the American Gear Manufacturers Association recently met at the Hotel Statler, Buffalo, N. Y., and a well defined program was laid out for future activities. Every committee had representatives present, and all phases of the subject were discussed. It is expected that quite an advance toward the standardization of some of the phases will be made by the time of the annual meeting in April.

The standardization of gear making is one of the most important programs that the automotive industries have outlined for the reconstruction period. The cooperation of every gear manufacturer in the country is sought. President F. W. Sinram of the American association, in urging to action the standardization committee, which represents gear manufacturers, has begun a definite reconstruction movement.

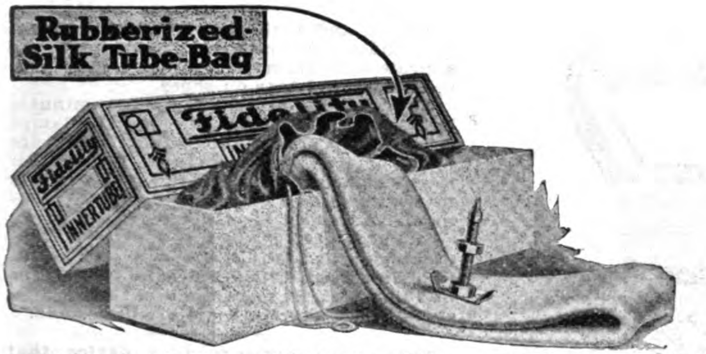
COMMERCE MOTOR CAR MEN IN CONFERENCE.

A conference of the district sales managers of the Commerce Motor Car Co., Detroit, at the factory, has been completed, and managers have returned to their respective territories. George D. Wilcox, director of sales and advertising, announces these men as follows: W. H. Brinkerhoff, W. B. Wood, William J. Ward, N. R. Horner, S. Wier and L. J. Stevenson.

LYONS NOW ASSOCIATED WITH B. F. EVERITT CO.

L. E. Lyons, who for six years has been sales engineer of the axle division of the Sheldon Axle and Spring Co., with offices in Detroit, is now associated with the B. F. Everitt Co., Detroit, manufacturer and distributor of the Elbertz positive drive differential.

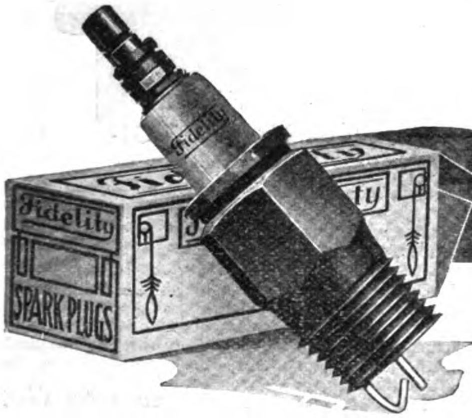
L. E. Lyons, Sales Engineer, Now with B. F. Everitt Co., Detroit, Mich.



Fidelity Spark Plug. This is one of the specialties of the New England Mills Co., Chicago. Another, illustrated, is the Fidelity Inner Tube in a rubberized silk tube bag.

The New England Mills Co. sells at wholesale only and not to consumers. It is a live wire organization, catering to progressive accessory dealers who want to boost their business.

The company takes just pride in its reputation. It is a responsible concern, with Dun, Bradstreet and other references to back it up. It has an unusually liberal guarantee. Its goods are guaranteed not only to be as represented, but to satisfy thoroughly. The buyer is the sole judge. If a dealer is not satisfied with any goods bought from the company he may return them. Not only will his money be refunded, but he will be reimbursed for all transportation charges.



The company deals in standard merchandise at low prices. It has an excellent service department, which is in charge of expert men who have specialized this line for years, and who will send the merchandise ordered, the kind expected.

The company's guarantee is backed by years of established business and by reference to any national bank in Chicago.

"The Little Salesman" is a dealer's catalogue of automobile and truck supplies which the company will send to any dealer upon application. It is a very valuable book.

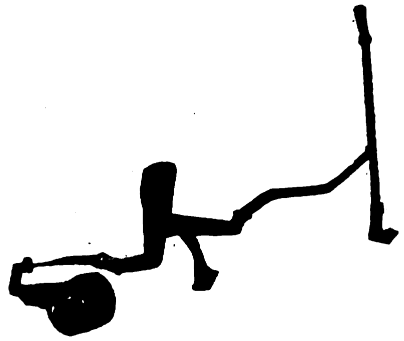
The New England Mills Co., 1219-1221 Michigan Ave., Chicago, Ill.

Barrett Motor Starter for Fords. This starter has no chains, springs, batteries or wires. All the essential parts are made of chrome nickel steel case hardened. Danger of backfire is eliminated because it automatically releases the gear on the back kick. The Barrett lever, within easy reach, enables one to master the engine from the seat and requires only one-third the physical effort of cranking. Every piece of the Barrett Motor Starter is guaranteed for five years. The complete outfit weighs only 10 pounds.

It is easily installed without changing the appearance of the car, it being completely concealed within the hood. None of the car's working parts are interfered with, and the regular crank is left in place. No power is taken away from the engine, as it is released from contact with the crankshaft as soon as the engine starts.

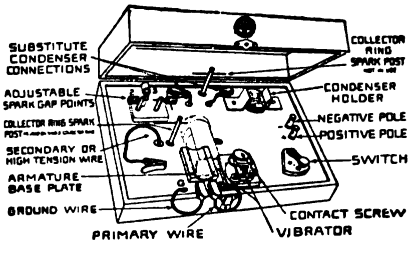
With this starter the car can be started in the coldest weather with ease from the seat. A special priming device, which is a part of the outfit, makes it possible to vaporize gas directly into the cylinders by pressure on the button.

Power is derived from a lever right in the cowl alongside of the driver and operated with the left hand. This power is transmitted through the dash and by means of a solid steel connecting rod to a moveable plate, bolted to the engine case, a rock bed foundation for such a contrivance. Plate and engine case appear to be one. From the moving plate power is transmitted by a shorter rod to a set of gears, one of which is pinned solidly to the Ford crankshaft, and it is here where the application of power on the lever finds its result in turning the engine over. A self-oiling appliance insures lubrication.

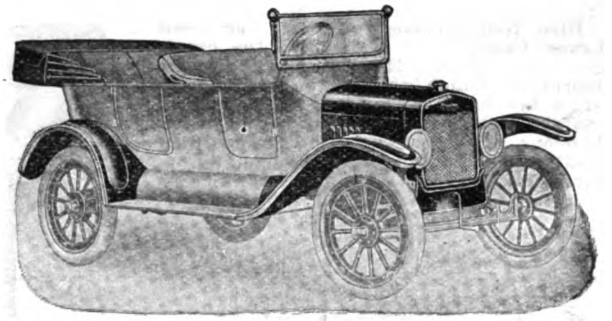


Manufactured by the Barrett Motor Starter Manufacturing Co., Inc., 1777 Broadway, New York City. Price, starter and primer complete, $25.

Defectometer. This is a new and useful device for those engaged in magneto repair work. It enables the repair man to quickly locate shorts in the various parts of the magneto. It is designed and manufactured by Paul G. Niehoff & Co., Inc., Chicago, who are authorities on magnetos. It is the first instrument of its kind ever put upon the market and should prove to be a valuable assistant to electrical repair men, as its possibilities are very extensive for test work.


SUBSTITUTE CONDENSER CONNECTIONS
ADJUSTABLE SPARK GAP POINTS
COLLECTOR RING SPARK POST
SECONDARY OR HIGH TENSION WIRE
ARMATURE BASE PLATE
GROUND WIRE
PRIMARY WIRE
COLLECTOR RING SPARK POST
CONDENSER HOLDER
NEGATIVE POLE
POSITIVE POLE
SWITCH
CONTACT SCREW
VIBRATOR

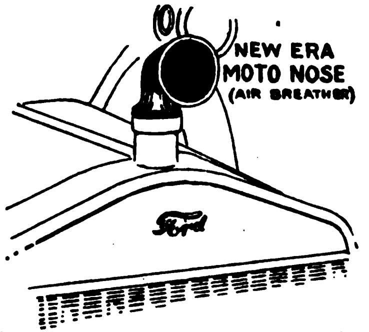
Manufactured by Paul G. Niehoff & Co., Chicago, Ill. Prices on request.



Corcoran Crown Fenders. Our illustration shows the distinctive appearance given to a Ford car by equipping it with the Corcoran Peerless attachment and crown fenders. All parts are furnished, finished with two coats of black enamel baked on.

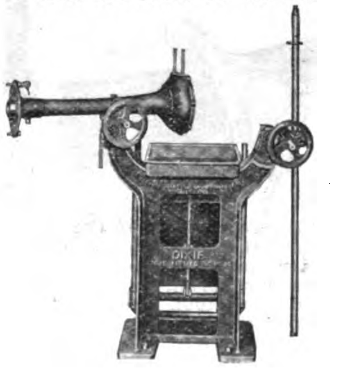
Manufactured by the Corcoran Mfg. Co., Cincinnati, O. Price quoted at request.

"Moto Nose." The "Moto Nose," or air breather for Ford cars, is a funnel like device which attaches to the neck of the radiator. "Moto Nose" does not tell you when the water in the radiator is too hot, but keeps the water from getting too hot by taking cold air into the radiator over the surface of the water and relieving the internal air pressure of the radiator. "Moto Nose" is not a fragile instrument. It is made of metal, neatly designed and highly finished. A screen in the funnel opening keeps out dirt and other foreign matter.



Manufactured by the New Era Spring and Specialty Co., Grand Rapids, Mich. Price, black, $1; nickel, $1.50. West of Denver, add 10 per cent.

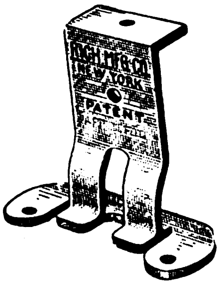
The "Dixie" Front System and Rear Axle Repair Stand is built for a combination front system and rear axle overhauling stand to take the place of the old fashioned four post or gas pipe type, which is now being used in many garages.



The "Dixie" stand is equipped with two vises, one of them turning on a swivel or pivot and the other tipping sideways. With the aid of these two vises, constructed as they are, various operations can be quickly done from all angles. The stand takes only 1¾ feet of floor space. It can be placed in any location and the service life and utility will continue for years.

Manufactured by the Service Station Equipment Co., Inc., 1201-11 Cortland St., Chicago, Ill. Write for prices.

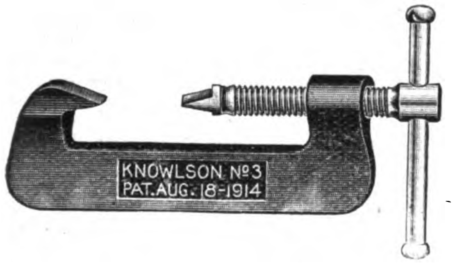
Rico Reinforcement Bracket for Ford Crank Cases. Why wait until the crank case arms snap? "Rico" Brackets prevent vibration, which causes the crank case arms breakage. They are applied as a "safety first" measure before actual break happens, as they stop the vibration, which weakens the engine. They are equally effective, however, after the crank case arms have broken. There is no comparison between the cost of "Rico" Brackets and what it would cost to have the engine removed, the crank case taken off and new arms procured and riveted in place of the defective ones.

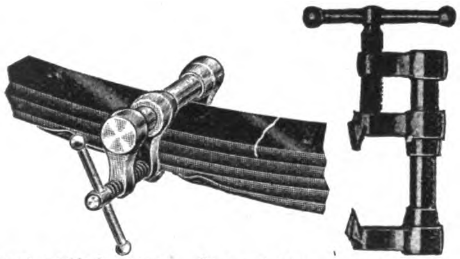


With "Rico" Brackets there is no necessity for this expense and waste of time. "Rico" Brackets are attached with bolts in a few minutes. The "Rico" Reinforcement Bracket meets the wants of every Ford owner. A broken crank case is a disagreeable experience.

Manufactured by the Rich Manufacturing Co., 1777 Broadway, New York City. Price, per pair, $3.

Knowlson's Spring Leaf Spreader, No. 1, takes the squeak out of autoing and also brings easier riding. Springs go to ruin if neglected and even one jolt of a rusty, squeaky spring may cost many times the price of a preventive. Knowlson's Spring Leaf Spreader is made of drop forgings, nickel plated and polished. The spreader is sold at a guarantee of money back if not satisfactory. One of the accompanying illustrations shows the device as a temporary spring clamp.

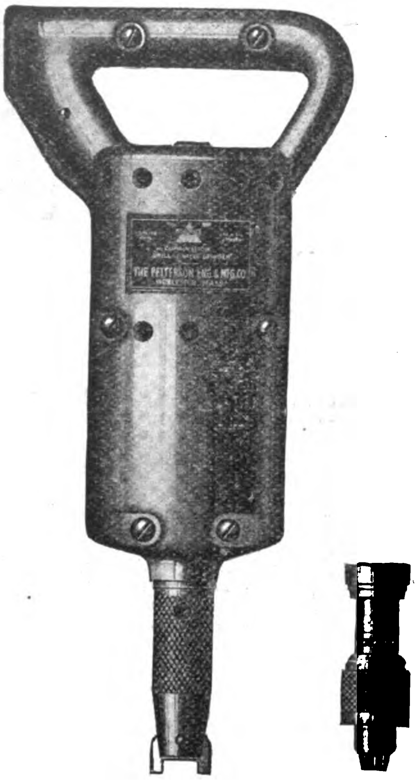




Knowlson's Spring Spreader No. 3 is a strong, durable tool, drop forged and polished, and with a gun metal finish, with screw and handle of dull nickel plate. It has all the qualities of the higher grade Knowlson Spring Spreader except the clamping of a broken spring.

Manufactured by the Spring Leaf Lubricator Co., Ann Arbor, Mich. Prices: No. 1, $1.75; No. 3, $1.25.

Bilt-Rite Combination Drill and Valve Grinder. Is an electric portable device for valve grinding or drilling holes up to ¼ inch in diameter. With a screw driver change fom one operation to the other is made in a few moments, giving an oscillating motion for valve grinding and the required speedy rotary motion for drilling, neither operation interfering with the other.



The oscillating speed is not excessive, engineering calculations on successful grinding determine speed as indispensable. The finer the compound used the smoother the seat. The drilling or valve grinding action may be had separately, the mechanical conditions remaining the same.

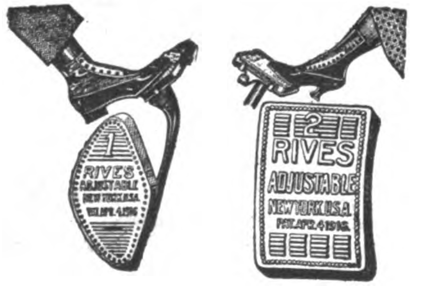
Innumerable times in auto repair shops or manufacturing plants a light portable drill for small miscellaneous drilling saves time. A Bilt-Rite Electric Valve Grinder energizes a particularly slow, tedious job, by doing it electrically, and cuts down labor costs.

Specifications for the combination drill and grinder are as follows: Socket plug, eight-foot cord, attachment plug, cut-out switch between slip plug and motor, 1-12 horsepower motor for 110 to 130 direct current or alternating current or universal, grinder chuck, drill chuck, three drivers to fit grinder chuck for all cars except Buicks and Franklin. Special chucks for Buicks and Franklin cars $1 additional.

Heat treated steel gears with steel shaft and bronze bearings. Motor pinion forced on and keyed to the motor shaft. Specify higher voltage if desired. Same specifications apply on electric drill and valve grinder separately omitting grinder chuck and drill chuck respectively. One valve spring of a tension sufficient to allow a wide margin of safety in grinding valves as far as pressure is concerned is furnished.

Manufactured by Patterson Engineering and Manufacturing Co, Worcester, Mass. Write for literature and prices.

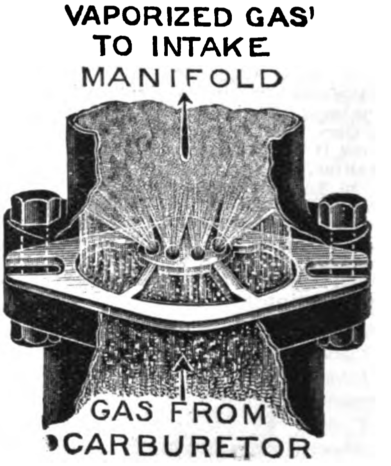
Rives' Neverslip Auto Pedal Pads. These give safety and protection to every occupant of the car. Did you ever stop to think when the driver of a car has to push out the clutch and push on the brake to avoid an accident, what the result might be or what it might cost if his foot slipped? The Rives Neverslip Pads are adhesive and resilient. They kill vibration and are a non-conductor of heat. As a protection from rough metal they prevent wear and tear on shoes.



They may be attached in a few minutes by simply bending the metal clamps around the back of the pedals. They are made of live white rubber. The rubber is vulcanized through and locked securely to the metal. There is a patent attachment. A design is made for every car.

Manufactured by George H. Rives Manufacturing Co., Inc., 2187 Woolworth building, New York City. Prices: All designs and numbers, $1 per set, except Ford Specials, which are 50c a set of three pads.

Conservo Vaporizer. Is a device that can be installed in a few minutes, between the carburetor and the intake manifold. It is claimed that Conservo effects a change in the gas as it comes from the carburetor, breaking the heavy volume into a vapor, actually forcing every drop of gasoline to be used to its full efficiency and giving the one perfect scientific mixture for the cylinders, and that the power of the motor is increased.



PATENT PENDING

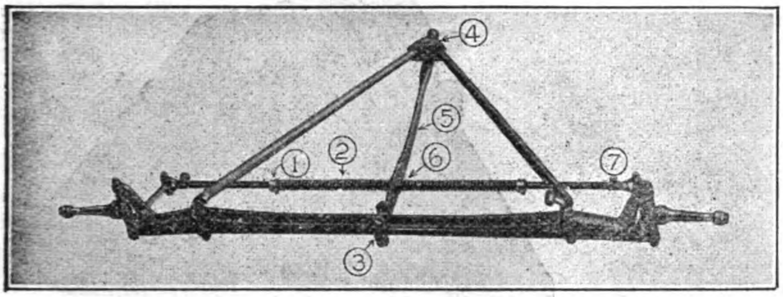
Conservo is sold under a money-back guarantee. It is claimed that carbon is practically eliminated, due to the fact that the gasoline is thoroughly vaporized and thus more complete combustion is obtained.

Conservo Sales Co., Inc., 225 Fifth Ave., New York City. Price, $5.

Waxit is both a cleaner and polish. Its function is first to take off the dirt, grease and dust and restore the brilliancy to finish which it formerly possessed. Both of these results are accomplished in the same operation. No oily film or waxed surface is produced. The original luster is brought back. Waxit is sold in six ounces, 14 ounces and quart bottles and half gallon and gallon cans. The price range is from 35 cents to $3.50.

See That Bright Spot
Waxit
Made It
WAXIT MANUFACTURING CO.
Waxit
Waxit
Waxit
Waxit
Waxit

Manufactured by Waxit Manufacturing Co., Old Colony building, Chicago, Ill. Write for attractive dealers' proposition.



"Hold 'Em in the Road" is a combination of four of the most important attachments of the Ford, and is insurance against a broken rod. It is a combination of radius rod brace, anti-rattler, axle support and steering device.

The "Hold 'Em in the Road" attachment consists of a center brace running from the center of the axle to the rear of the radius rods and having a hole through which the tie rod passes. The springs, one on each side of the center brace, encase the tie rod and are held in place at the outer end by set collars. The device is bolted tight with the wheels lined up straight ahead.

The attachment stabilizes the turn of the front wheels, prevents wear and tear on all parts of the front axle, steering gear and tires, braces the radius rods and prevents the tie rod from rattling.

Manufactured by the Cooper Auto Supply Co., Thomasville, Ga. Price, $5. Dealers' orders will be filled through nearest jobber.

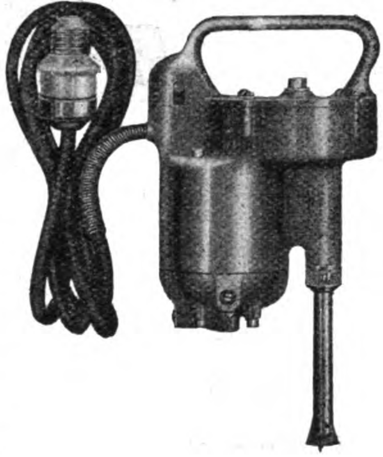
Jackson Electric Valve Grinder. The No. Four Jackson Electric Valve Grinder was developed principally to meet the most severe army service and has been extensively used in the aviation and army transport divisions, as well as by manufacturers of motors for such service. Its efficiency, durability and dependability have been thoroughly proven.

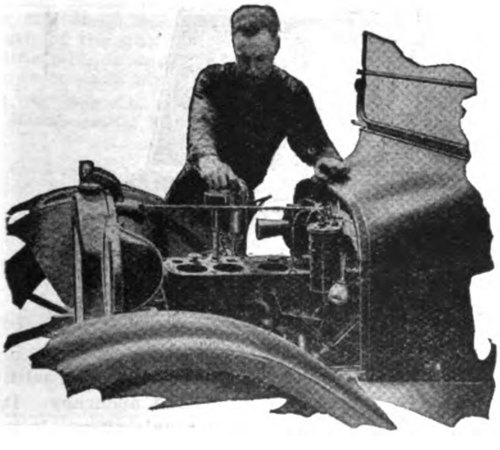
The advantages claimed for this tool include: Saving of 60 to 80 per cent. of time required to properly perform the same operation by hand; due to rapid uniform oscillating motion, a seat more perfect than is possible to obtain by hand is assured; does not require expert labor to produce excellent results; designed solely for the purpose of grinding valves.

Its capacity includes valves up to 3½ inches in diameter. It weighs six pounds. The motor is of special design, operates either on direct or alternating circuits, consumes approximately 75 watts. The casing is constructed of a tough aluminum alloy. All working parts, motor shaft and grinding shaft operate in phosphor bronze bearings. All steel wearing parts are hardened. Interchangeability of all parts is guaranteed.

Special attachments may be obtained at slight additional cost for any of the following requirements: Liberty aviation motor, cushioned flexible chuck suitable for valve in the head construction; Buick cage valve, cushioned flexible chuck. The grinder complete is furnished with standard bits for slotted valve, spanner bit for Ford, valve lift springs, flexible cord and attaching plug.

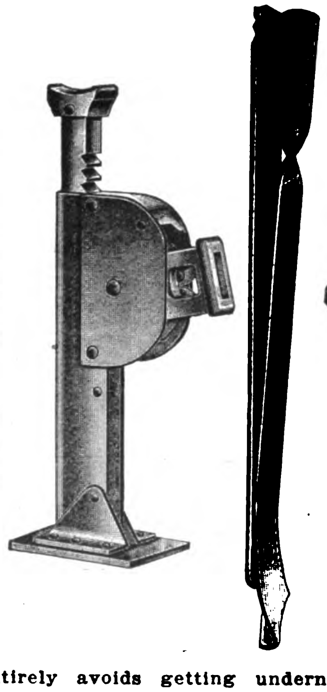
Manufactured by the Kalamazoo Railway Supply Co., Kalamazoo, Mich. Write for prices and literature.

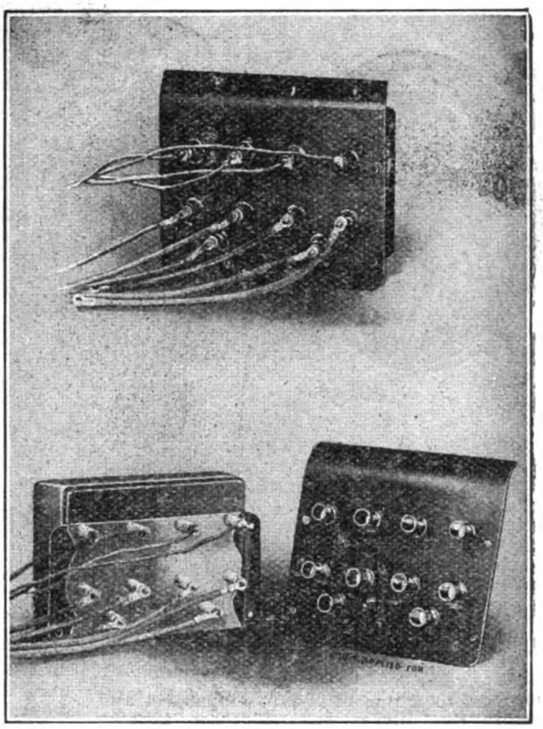




Lane's H-C Jack. The main feature of this jack is that it is the only jack in the market that may be placed underneath the rear of the modern overhung cars with one hand at the extreme outer end of a three foot handle, operated, reversed and removed by the one hand on this handle while a person is standing in a natural and easy position, entirely out of contact with grease or oil. That the jack operates quickly and with the utmost ease are also favorable features, but the dominant fact is that with the Lane H-C Jack one entirely avoids getting underneath the car.

Manufactured by Lane Brothers Co., Poughkeepsie, N. Y. Prices, $4.50 to $14.





"Casco" Metal Coil Box Protector. Wet coils have been a prolific source of trouble and expense in the past, causing break downs, delays, repairs and various other difficulties. The "Casco" Coil Box Protector is to prevent such results by eliminating the cause. It is to keep rain and dampness from reaching the coils, insuring these vital parts of the car against any possibility of damage arising from the presence of moisture. It can be installed in a few moments without the aid of a mechanic. More than 30,000 of these were sold during the first 60 days on the market.

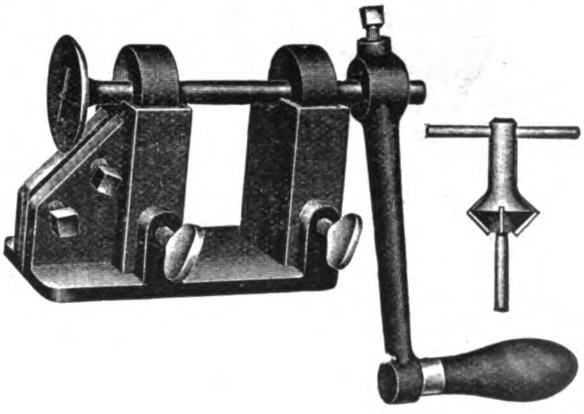
Manufactured by the Cooper Auto Supply Co., Thomasville, Ga. Price, $1.

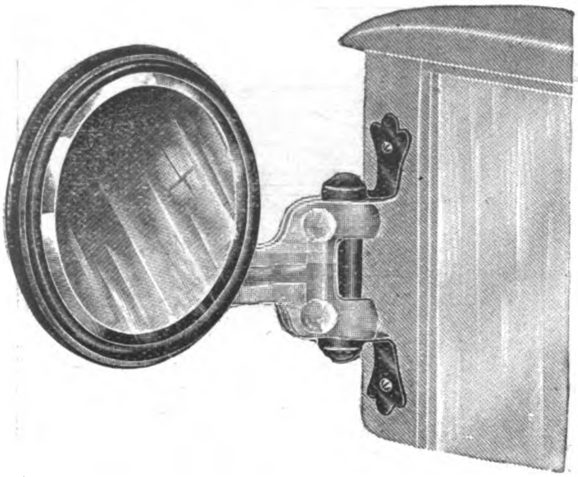
Valve Facer and Valve Seater. Repairing automobile engines is an important job and the saving of time, labor and expense interests not only the repair man, but also the car owner. To keep the gasoline engine in perfect running order it is of first importance that the valves fit their seats and are free from leakage. They should be refaced and reseated after the engine has run at least 5000 miles to prevent loss of power and waste of gasoline.

The tools here shown, a valve facer and a valve seater, are all that is required to reface and reseat any and all sizes of valves and seats.

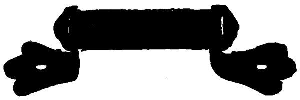
An attractive proposition is offered to local distributors or dealers.

Manufactured by S. D. Hartog Manufacturing Co., 2638 Locust St., St. Louis, Mo. Pamphlet and prices on request.



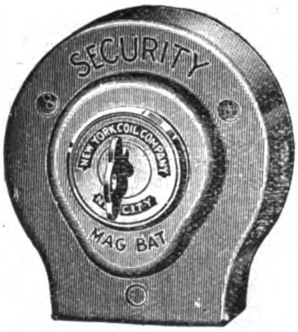


Rosco Sedan or Limousine Mirror Bracket. This bracket converts every ordinary windshield mirror into a sedan mirror, thus eliminating the stocking of extra mirrors for sedan cars. It is furnished with screws. Simply screw on bracket to frame of sedan windshield and clamp the mirror on the Rosco attachment as illustrated. Illustrations show the bracket and also a view of the Rosco bracket attached on a limousine body.



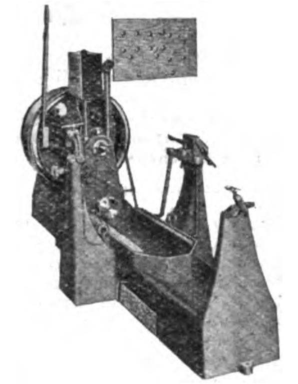
Manufactured by A. W. Rosen & Co., 610-614 Broadway, N. Y. Price, bracket, 50 cents.

New York Security Switch Lock for All Fords. This is really a combination of two switches, one to lock the ignition circuit battery or magneto and the second the switch that grounds the entire ignition system, so that it is impossible to wire around coils or "beat" the device in any manner known to the most expert of thieves. It can be installed in five minutes on either the old style (moulded) or the new style ((all metal) switch. Your present switch is not disturbed—the wires and attaching bolts remain the same. The strong metal housing completely covers your present switch. The attaching screws are covered by steel bars. The powerful cam forces the bars over screw heads at the first turn of key, and then keeps them there. The screw holes are always covered, so there is no chance for entrance of dirt, dust or moisture. A bronze spring short circuits or grounds the entire ignition system when the switch is turned to "off" position, completely baffling the would-be thief.



Manufactured by the New York Coil Co., 338-340 Pearl St., New York City; western factory, 1440 Michigan Ave., Chicago. Price, $3.25.

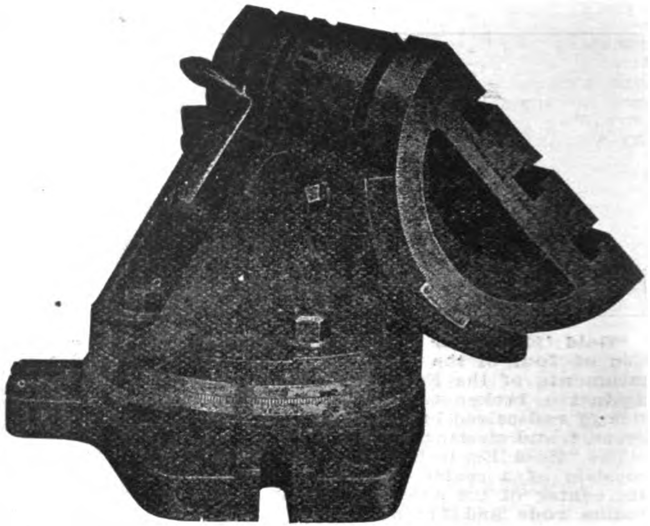
The American Combination Bearing Burning-in and Motor Test and Running-in Stand for Ford Motors is simple and positive in operation and has distinct advantages that make it practical and economical equipment for use in any shop. It requires less reduction to operate on account of the gear reduction being 3½ to one. The following is a detailed description: Length, 76 inches; weight, 985 pounds; floor space, eight square feet; gears, two inches, five pitch all steel; tryout wheel, 21 inches in diameter; speed burning-in shaft, 225 revolutions per minute; width at widest part on base, 23 inches; height of motor support posts, 24½ inches; shafting, two inches, 40 point carbon steel; pulley diameter, 18x7¼ inches; weight, 175 pounds; bearings, non-gran bronze and nickel babbitt; speed, 550 revolutions per minute for running-in and testing motor; five to 7½ horsepower required to operate; five inch double ply belt; lubrication, grease cups on bearings; gears run in heavy oil; alignment device on right motor support post for aligning the universal joint when testing motor; clutch, three-point maple block, internal expanding; counterbalance feature will insure quick and positive stopping at any speed; equipment, one gallon gasoline tank, swinging coil dash, inlet and outlet water connections, oil catch pan, voltmeter optional.



Manufactured by the Service Station Equipment Co., Inc., 1201-11 Cortland St., Chicago, Ill. Price, $350; rear axle and running-in attachment, $20 additional.

The Starrett Patent Magazine Screw Driver is fitted with four blades of different widths from 3/32 to ⅜ inch, any of which may be taken from the telescope handle and inserted in the end, where it is automatically locked and firmly held for use. The blades are carried in the handle, where, by a spring pressure, they are held from rattling when carried in the pocket, or from being lost when the cap is off. While the cap may be readily pulled off or put on, it is rigidly held from turning and frictionaly held from coming off, with no screws to bind or bother.

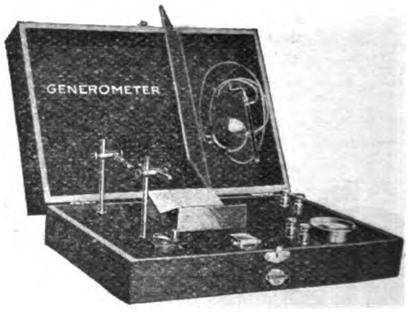
Manufactured by the L. S. Starrett Co., Athol, Mass. Price, $1. Extra blades, 10 cents.



Universal Angle Plate. The value of a machine tool in any shop is dependent upon the number of times it can be used and the variety of work that can be done upon it. The Universal Angle Plate is designed to be attached to any plain milling or grinding machine, converting it into a universal tool, upon which may be done many jobs that would have been impossible without the employment of the plate. The table has an adjustment through 360 degrees horizontally and 90 degrees vertically, without disturbing work bolted to it. Graduations with Vernier attachment reading five minutes, permits of its use for especially fine work. The tool is rigid and strongly built and has unlimited possibilities of application for work in connection with lathes, planers, milling machines, shapers, drill presses and grinders.

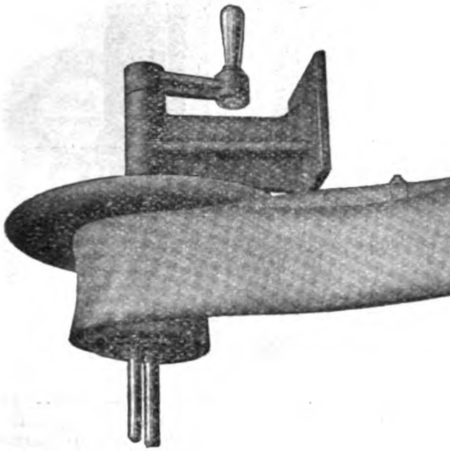
Manufactured by Boston Scale and Machine Co., 381-389 Congress St., Boston, Mass. Price quoted at request.

Generometer. This instrument meets a universal demand by electrical repair men. The most common trouble on the lighting system is that of a defective generator armature. This instrument will enable the electrician to immediately determine whether the armature is defective and in what manner it is defective. It will detect minor troubles on the armature that can be easily fixed by the electrician himself, thus saving the time and money involved in sending it out to have it rewound. This instrument will be generally welcomed by the average repair man, as it will enable him to do his work with much greater efficiency and accuracy. It is a necessity in every repair shop. It is constructed and based on scientific principles. The case is in mahogany finish and measures 15 7/16 inches long, 10¾ inches wide and five inches high. It will prove to be a valuable asset in any electrical repair shop.



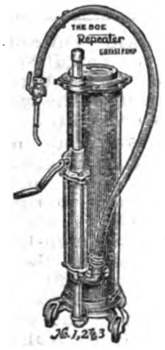
Manufactured by Paul G. Niehoff & Co., Chicago, Ill. Price, $30.

Miller's Combination Tape Wrapper and Tube Deflater. This device will deflate the average size tube in one-half minute. By removing the top pin, which is set in threads, the outfit is used for wrapping tape wrapper, used on tire when making cure on inside vulcanizers, and also for retreading purposes. A repair shop doing any amount of business can save the cost of this tape wrapper and tube deflater in a very short time.



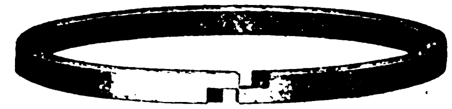
Manufactured by Charles E. Miller, Anderson, Ind. Price, $4.50.

The Boe Combination Grease and Oil Gun is a quick, crank operated, gear action, rack and pinion gun. It is strong and durable, being built for hard work and rough use. The barrel is made from finest Shelby seamless 2⅜-inch steel tubing with self-acting tension plunger, which will load and discharge heavy as well as light lubricant. All the gears and moving parts of the gun are enclosed, making the same an exceedingly convenient and clean gun to handle. The entire length of the gun is 31 inches. It weight is nine pounds and it has a capacity of 20 ounces to each pump stroke.

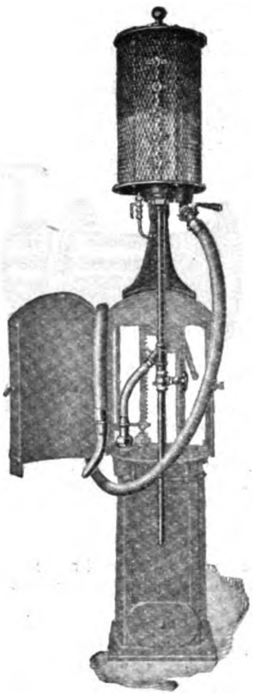


H. M. Boe Co., 2416 University Ave., S. E., Minneapolis, Minn. Price, $6.

The Taylor Leakage Proof Ring is designed to cure any Ford cylinder of loss of compression, oil throwing, carbon troubles or loss of power. It may also be used for many other makes of truck and pleasure car motors. The interlocking, underlapping joint makes a perfect seal, which compression or explosion gases and oil cannot break. It is strong and durable, ground to accurate size, eccentric and one-piece and bears and wears uniformly. There are no points to break or catch carbon.



The G. H. Dyer Co., 155 Brookline St., Cambridge, Mass. Price, 50 cents.

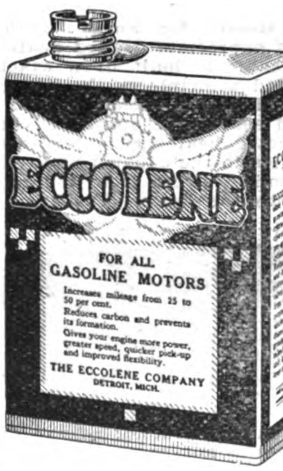


The Groetken Visible Measuring Dome will convert a "blind" pump into a visible one. With its five-gallon capacity that fills, measures and empties in less than two minutes, it provides quick and economical service. Through the Groetken glass dome the customer sees that the quantity is correct. The old pump, to which the Groetken attachment is added, continues to be operated as before. The Groetken equipment is simple in construction and is easily attached to the old style pumps. It is attractive, being red enameled and nickel plated. All parts are easy of access. It is dust, rain and snow proof.

Manufactured by the Groetken Pump Co., Aurora, Ill. Write for literature and prices.

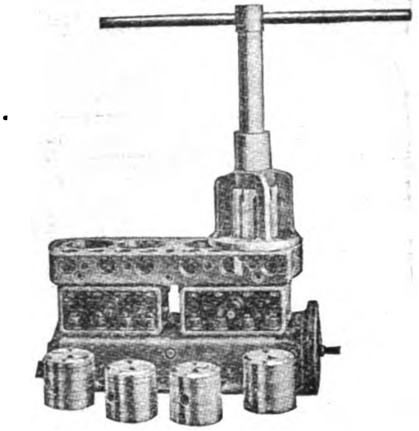
Eccolene. Gasoline economy—getting more miles from your gasoline—is of prime importance to every automobile owner today. Eccolene, it is claimed, saves gasoline, prevents carbon troubles, increases power, reduces overheating, lessens smoke and noise, produces better acceleration and a smoother, better running motor in every way.

Eccolene, through a complex process termed decolization, makes gasoline vapor more thoroughly combustible under compression in the motor cylinder. By decolizing the gasoline vapor Eccolene transforms a large proportion of the carbon forming elements, and at the same time assists the process of lubrication.


ECCOLENE
FOR ALL GASOLINE MOTORS
Increases mileage from 25 to 50 per cent.
Reduces carbon and prevents its formation.
Gives your engine more power, greater speed, quicker pick-up and improved flexibility.
THE ECCOLENE COMPANY
DETROIT, MICH.

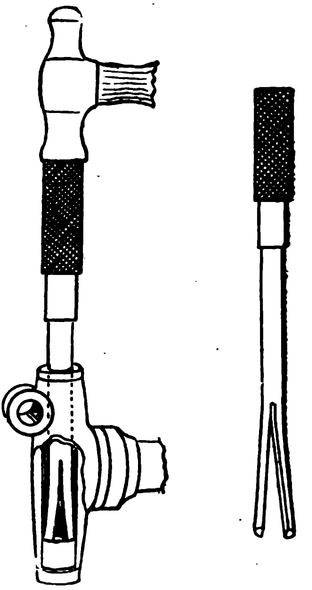
Edward A. Cassidy Co., Inc., Madison Ave. at 40th St., New York, N. Y. Quart size, $2; gallon size, $7.

The Dyer Rebabbitting Jig for Ford connecting rod bearings is strongly and simply made and is inexpensive. The parts are few and well machined. No skill is required to rebabbitt rods. The jig is placed in a vise, the rod slipped on after one nut and the cap on the jig are removed and the journal of the jig has been heated and greased. The babbitt is then poured through either of the two holes in the cap, the gases escaping through the other. The rod is held in place by a dummy wrist pin and a groove in the jig cap.



The G. H. Dyer Co, 155 Brookline St., Cambridge, Mass. Write for prices.

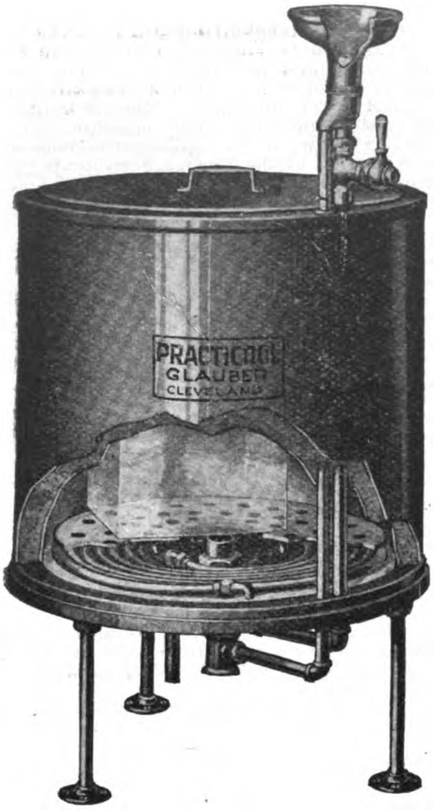
The Bushing Extractor quickly and easily removes the steering knuckle, spindle arm and spring bushings in a Ford front axle. It is made of steel and nicely finished. It may also be used for Ford, Dodge, Dort, Chevrolet and Overland cars. It is valuable to the repairman and the owner who does his own work. When removing the steering knuckle bushings it is not necessary to remove the wheel.



The G. H. Dyer Co., Cambrdge, Mass. Write for literature and prices.

"Ideal" Set for Fords. The "Ideal" wrench set comprises 10 sockets, including all special sizes. Included are a ratchet handle, universal joint and extension bar. The tools are of durable construction and built to give long and satisfactory service.

Manufactured by Frank Mossberg Co., Attleboro, Mass.



The Practical Drinking Fountain is a splendid thing for garages. The fountain serves city water at its natural temperature during the cool months of the year, and during the summer months if kept supplied with ice it produces a 20-degree reduction on city water. It is a refrigerating drinking fountain, embodying a Glauber Sanitary Bubbler. It is made of heavy iron, the ice chamber being of galvanized iron. Insulation is granulated cork.

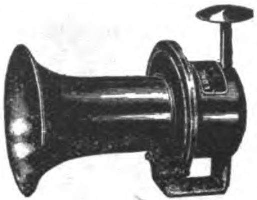
The fountain holds a 75-pound cake of ice, which will usually last about three days, and which, even under the most severe conditions, will run the fountain a day. It has a 40-foot coil, always submerged in melted ice water, making it an instantaneous cooler. Being connected to waste and supply pipes, it requires no attention.

Manufactured by the Glauber Brass Mfg. Co., Cleveland, O. Write for literature and prices.

The Windshield Spotlight is of very rigid construction, can be moved to any angle and will stay in position regardless of the severe vibrations and jounces to which it is subjected. It has an octagon front, which gives a distinctive and ornamental appearance. A four-inch diminishing mirror is placed on the side of the body of the lamp and a very slight movement of the hand turns it into position for rear vision. It is equipped with one of the latest type of switches; an upward push lights it and an additional push shuts it off. It is finished with nickel front and black enameled body. The door is six inches in diameter.

Manufactured by the Kilborn-Sauer Co., Fairfield, Conn. Price with four-inch mirror, $9; without mirror, $8.

Long Horn—The exceptionally compact mechanism of the model "3" Long Horn is of a new and improved design. It is mounted as a unit on its own bed plate, reducing to a minimum the possibility of the bending or buckling of the vibrator shaft and insuring rigidity and proper alignment of the working parts at all times.

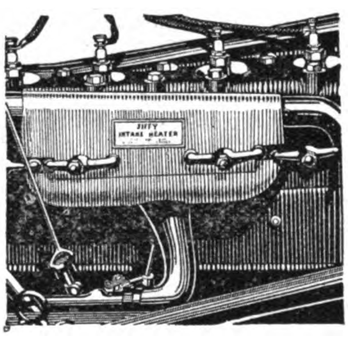


Long Horn

The gear train is so arranged as to secure ease of operation from the initial application of power throughout its range of action and to equally distribute the shock and strain of impact through the several gears. The vibrator shaft, therefore, is never subjected to sudden and undue shocks or strains.

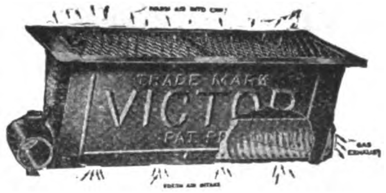
Edward A. Cassidy Co., Inc., Madison Ave. at 40th St., New York, N. Y. Price, $3.50.

Jiffy Intake Manifold Heater. This is a heater for Ford cars that is attracting considerable attention. The intake heater is made of heavy gauge steel. It is held in place by the two center manifold clamps. Because of the fact that it quickly heats the intake manifold, it is claimed that the gas consumption is greatly reduced, while the power of the motor is increased. The heater can be installed by a motorist himself in a short time and can be easily removed in summer months.

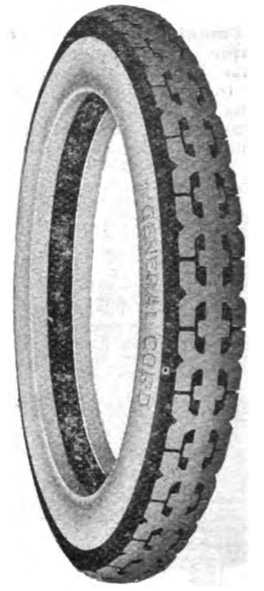


Manufactured by the Twin Fire Spark Plug Co., Detroit. Price quoted on request.

Victor Heater for Fords. Owners of Ford cars appreciate a good heater. The Victor Heater is built upon exactly the same tested principle as the hot air furnace, circulating fresh air over a heated drum and sending it upward. The drum of the Victor heater runs lengthwise, at right angles to the exhaust pipe. The exhaust, coming direct from the motor, is turned into the drum. Fresh air circulates around the outside of the drum, is heated by the hot gases inside and rises into the car. A cone-shaped spring in the drum absorbs the force of the exhaust, acts as a silencer and at the same time radiates heat outward toward the heating surface.



Distributed solely by the Foreign and Domestic Auto Supply Co., 1765 Broadway, New York, N. Y. Price, $5; in Canada, $7.50.

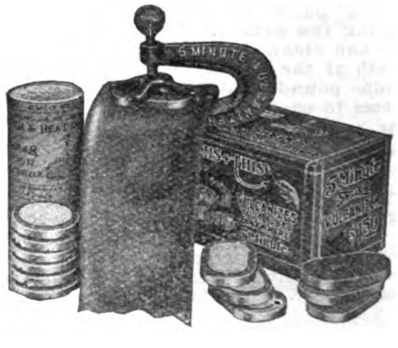


The General Cord Tire is of two-cure construction, expanded on a specially constructed air bag instead of the usual steel core. Every cord is expanded equally to the fraction of an inch, and the tire is cured while the cords are thus stretched to the degree that inflation on the wheel would have stretched them. Thus when the tire is inflated on the wheel, it is in the same condition that it was when cured. The rubber and fabric is not stretched; it gives naturally to road obstructions. The rubber does not cut, split, rim-cut or separate from the fabric, as in the case where inflation on the wheel puts the whole tire structure under tension.

The General Tire and Rubber Co., Akron, O. Prices from $42.30 to $87.40.

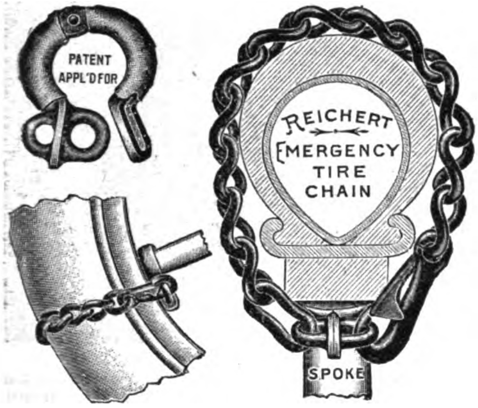
Shaler 5-Minute Vulcanizer. The demand for this wonderful Shaler vulcanizer has made it one of the biggest selling accessories ever put on the market. Its simplicity appeals on sight.

The Shaler 5-minute mends all tube punctures perfectly, making repair far superior to any "stuck on" patch. Also makes ideal repairs to rubber boots, hot water bottles, gloves, etc. Heat is produced by burning a non-flaming chemical heating unit. Each of the 12 patch units furnished with the outfit is complete in itself, consisting of the patent heat unit in its metal container, and the patch of raw rubber attached to the vulcanizing surface of the container. This cartridge is clamped over the puncture and the heat unit lighted. In five minutes the repair is welded permanently in place and moulded to a feather edge. Only the patch is heated. Anyone can use it. There is no danger of overcuring. Each outfit includes nickel plated clamp and 12 patch units (six round and six oblong) packed in a display box. Weight, one pound. 12 outfits in carton.



Manufactured by C. A. Shaler Co., Waupun, Wis. Price, type M, No. 5, with 12 patch and heat units, retail at $1.50.

Reichert Emergency Tire Chain. Reichert's chains are single chains fastened to the spoke with malleable clamps. The clamps are made of best grade malleable iron; the chains are of twist link pattern, extra heavy with a strong, substantial snap that locks the clamps. With a set of these chains on your auto you can pull out of the deepest mud or snow The chain can be put on in a moment. Put the clamp around the spoke, pass the chain around the tire and fasten snap in open eye of clamp. The device is so simple a child can operate it. They are packed a set of four in a bag, enough to pull you out of any mud or snow. No. 1 fits 3 and 3½ inch tires, set of 4, $3.20; No. 2 fits 4 and 4½ inch tires, set of 4, $4.00; No. 3 fits 5 and 5½ inch tires, set of 4, $5.00.



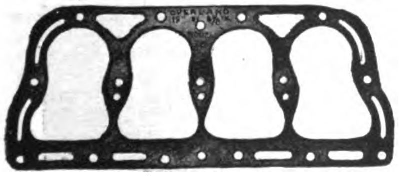
Manufactured by Imperial Bit and Snap Co., Racine, Wis.

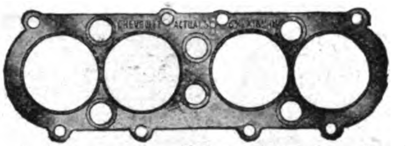
Advance Cork Insert Transmission for Fords. This equipment affords smooth action, sure braking and long wear. When the brake is engaged the corks touch the brake drums first. They compress gradually and ease the load down to the fabric. The light pressure required and smooth action of the buttons of cork coming into contact with the drums mean long wear. The secret of cork insert service and its success is the cork insert way of combining cork and lining.

$3 PER SET of 3
ADVANCE
CORK INSERT
TRANSMISSION LININGS FOR FORDS
"One Set Will Outwear 3 of Any Other Kind"
Makes A Great Car Greater

Manufactured by the Advance Automobile Accessories Corporation, 56 E. Randolph St., Chicago, Ill. Price, $3 per set of 3.

Never-Leak Cylinder Head Gaskets. There is a very large demand for cylinder head gaskets and the Fitzgerald Manufacturing Co. is prepared to make immediate shipment of gaskets from stock.





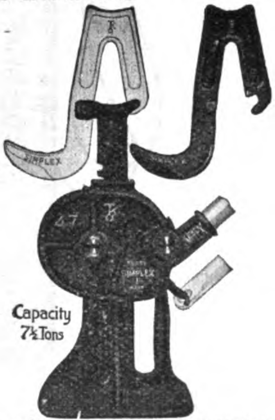
Among the gaskets carried in stock are the Briscoe 1916 model, Buick 1914 model, Buick model 4-36 1917, Cadillac 8, Chevrolet, Chalmers, Crow-Elkhart, Dodge, Dort, Enger, Grant 1916 model, Hupmobile 1914 model, Hudson Super-Six, Interstate, Kissel Six, Kissel Twin-Six, Maxwell, Monroe, Mitchell-Lewis, Metz, National, Oldsmobile 1914 model, Oldsmobile 1917 model, Overland model 75, Overland model 83, Overland model 90, Oakland Six, Oakland Four, Packard Twin Six, Paige model 38 1916, Paige model 46, 1916, Pathfinder, Pullman, Republic, Saxon Four, Saxon Six, Scripps-Booth 1917 model, Scripps-Booth 1915 model, Velie and Vim.

New gaskets are being made continually, and the company may be able to supply you with any not on its published lists.

Manufactured by the Fitzgerald Mfg. Co., Torrington, Conn. Write for literature and prices.

Simplex Auto and Truck Jacks are noted for wonderful safety features, strength, ease of operation, durability, convenience and guaranteed reliability. The No. 36 Simplex has been especially designed for light cars. The No. 38 is for heavier construction, especially for use with medium weight pleasure cars, and is fitted with an adjustable shoe which locks at seven different heights.

No. 41 is the most popular model, and has a rated capacity for 2000 pounds, but will easily lift 5000 pounds. Every part with the exception of the frame or standard is a steel drop forging. The short stroke insures easy lifting. There are three points of lift—cap, lower foot and steel auxiliary removable shoe, the shoe being an exclusive Simplex feature, a wonderfully convenient attachment when the car is in a bad rut. The cap rotates, permitting use of shoe in any operation. Nos. 42, 43 and 44 are built expressly for heavy trucks or limousines.



No. 45 will appeal to the owner of the luxurious limousine who is seeking the highest class and most efficient accessories for his car. No. 47 has been designed for trucks up to 7½ tons capacity and over.

Manufactured and guaranteed by Templeton, Kenly & Co., Ltd., 1020 S. Central Ave., Chicago, Ill. Prices, $2 to $20, subject to advance.

Clero Junior is a new model horn brought out by the Fitzgerald Manufacturing Co., the manufacture of both the old types of vibrator horns known as the Clero and Clero, Jr., having been discontinued. This horn has the same working mechanism, except for minor improvements, and is exactly the same as the old type horns except for the bell, which is somewhat shorter than on the old type Clero, is oblong in shape at the opening, and in other ways is a great improvement on the bells of the old types of both the Clero and Clero, Jr., horns.

Clero, Jr., is made with standard finishes, all black, black and brass or black and nickel. The length over all is 11 inches. It weighs unpacked 2½ pounds. It operates on four or six dry cell batteries or a storage battery. Complete wiring and attractive metal push button are furnished with each horn.

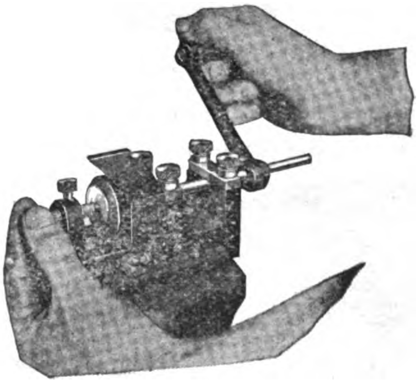
Manufactured by the Fitzgerald Mfg. Co., Torrington, Conn. Price, $4. Write for literature and prices of other Clero horns.

Two-Point Hard Rubber Switches for coils, batteries and magnetos. These are made with high grade rubber base and brass lever and contact button, nickel plated. The lever can be removed to prevent tampering when not in use. These may be used in connection with Ford electric lighting outfits or in any other case where a small, serviceable hard rubber switch can be utilized to advantage.

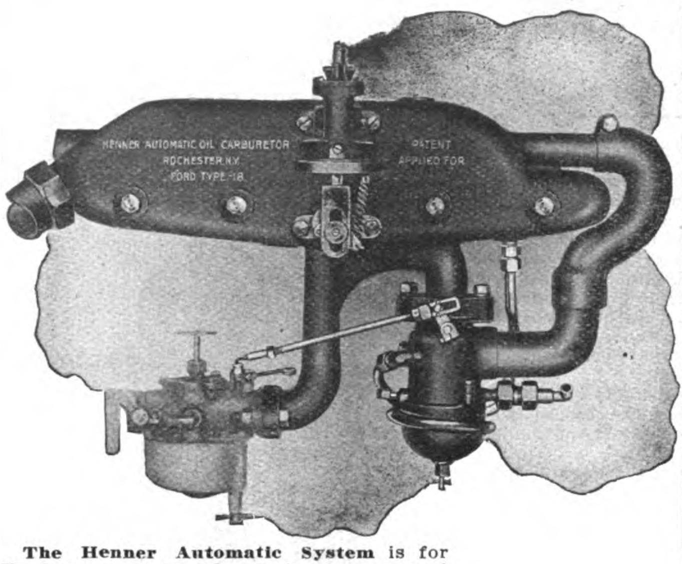
THE FITZGERALD MFG. CO.

Manufactured by the Fitzgerald Mfg. Co., Torrington, Conn. Price, 25 cents each; in quantities of 100, 19 cents each; in quantities of 1000, 16 cents each.

Sioux Ford Valve Refacing Tool. Although low in price, this is a high grade tool, accurately made. It will face Ford valves accurately and smoothly. The cutter is made of high speed tungsten steel, the same as used for lathe tools.



Manufactured by Albertson & Co., Sioux City, Ia. Price, $1.50.



The Henner Automatic System is for Ford car owners who desire to use coal oil as a substitute for gasoline. The Henner system, while simple in operation, is a very ingenious device which, while the motor is cold or is being started, is connected to its original gasoline carburetor, but upon being started and reaching a temperature sufficient to vaporize kerosene, the thermostat embodied in the system automatically turns a two-way valve and thus connects the motor with the kerosene carburetor. This eliminates the many adjustments and levers which are common in previous attempts to accomplish this result. The advantages are claimed to be less than half the expense of gasoline, less carbon, smooth running and no odor.

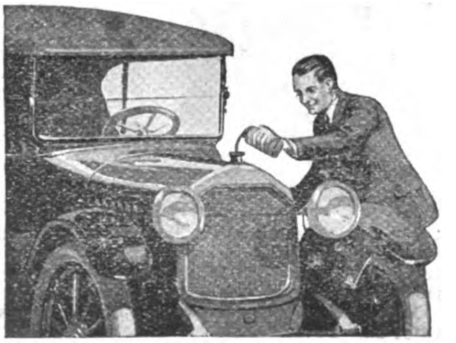
The Henner Automatic Oil Carburetor Co., Inc., 1000 East Main St., Rochester, N. Y. Price complete f. o. b. works, $55.

Radiator Neverleak is entirely different from all other preparations for stopping leaks in radiators. It is a liquid which mixes readily with water. It is scientifically compounded, is guaranteed to contain no acid or any injurious chemical, and it will not clog or impair the cooling system.

RADIATOR
NEVERLEAK
LIQUID COMPOUND
PRICE 75 CENTS

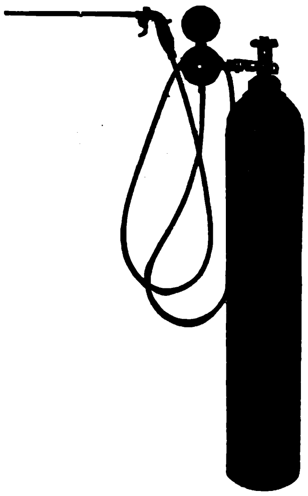
It will stop all ordinary leaks in automobile radiators in from five to 10 minutes. It makes a permanent repair by forming a coating the thickness of paint on the outside of break, which coating will dry over night, and is not again soluble by heat, cold, water or alcohol.

After adding the Radiator Neverleak to the water in the radiator and the leaks have been stopped, it is not necessary to change the water. Leave it in, because the Neverleak will not evaporate or lose its strength and is, therefore, always ready to automatically close up new leaks. Alcohol, but nothing else, may be used as an anti-freeze with Radiator Neverleak with perfect safety.

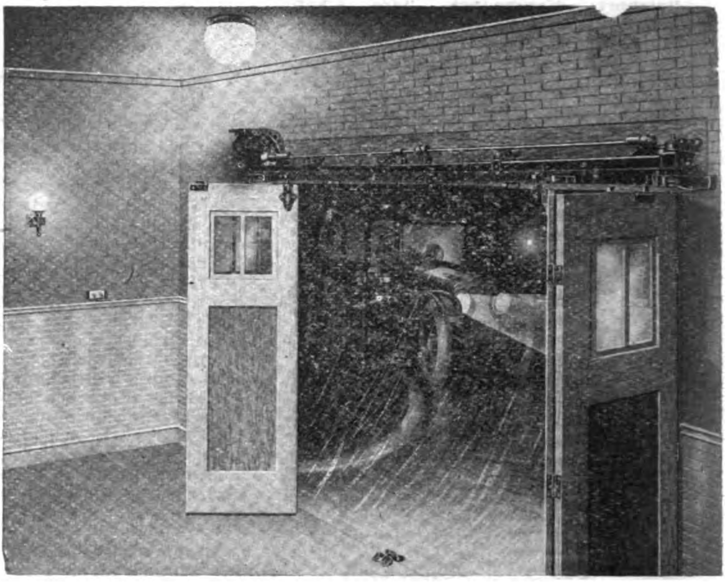


Made only by Buffalo Specialty Co., Buffalo, N. Y., U. S. A.; Bridgeport, Ont., Can. Price, 75 cents.

Carbon Removing Outfit. The modern method of removing carbon from engine cylinders by the oxydization process is acknowledged to be both rapid and efficient, but to properly burn out the carbon good apparatus is necessary. The style A carbon removing outfit illustrated consists of a flexible copper nozzle torch, which is fitted with a specially designed, quick acting trigger valve; a length of woven linen covered gas hose, with couplings at each end; a diaphragm type with hard rubber seat regulator, and a double connection, which is made to fit either ¾ inch straight pipe thread or standard Linde tank thread. Special attention is called to the improved design of the torch handle, which makes the use of it convenient since the flow of gas is easily controlled by the action of the trigger.



Manufactured by the G. H. Dyer Co., Cambridge, Mass. Price quoted at request.

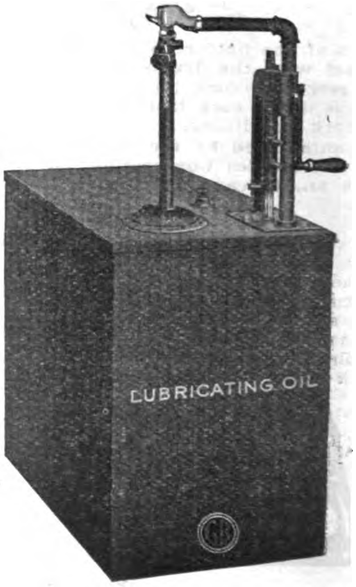


The "Electromatic" Door Opener can be installed on any opening where the head room is 12 inches or more. The mechanism is controlled by push buttons placed where they are most available. It is motor driven through worm gears to an operating shaft, reducing the number of parts, making practically a trouble proof device. Pressing the opening button lights the lights, unlocks the doors and folds them back clear of the opening. Pressing the closing button reverses the operation. Pressing the initial button stops the movement of the doors instantly. The buttons when placed out of doors may be operated with a cylinder lock. Simplicity and ease of application and operation are the features that predominate in this device.

Manufactured by the Allith-Prouty Co., Danville, Ill. Write for prices and catalogue.

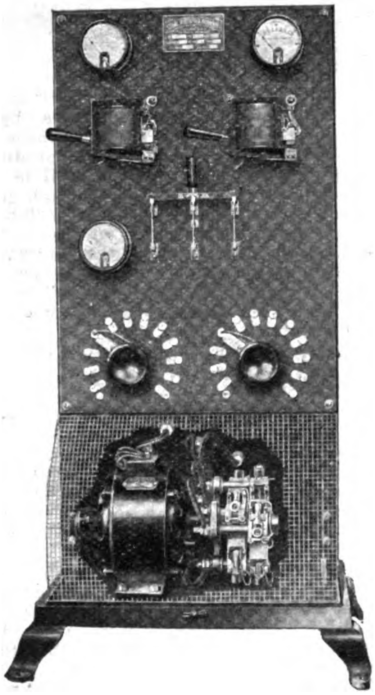
The Gilbert & Barker T-30 Handling Outfit can be furnished as a unit or as a battery of units to handle several grades of oil. The pump measures accurately quarts or lesser quantities; fills the oil can without overflow or waste. A drip pan returns the oil accidentally spilled; a stick gage shows the approximate contents of the tank and a lock safeguards the supply.

Manufactured by Gilbert & Barker Manufacturing Co., Springfield, Mass. Prices quoted at request.



Stahl Rectifier. This rectifier changes alternating current to direct current for battery charging by means of a revolving commutator—the simplest and most reliable method yet devised. It is nothing like a motor generator, and on the largest types turns 90 per cent. of the alternating current into direct current, as against the motor generator's 50 per cent. to 55 per cent. A small synchronous motor of one-eighth to one-quarter horsepower serves to turn the commutator. The current which is being rectified for charging the batteries does not pass through the motor. It is reduced by a transformer to approximately the voltage required for charging, then passes to the commutator, being collected from the commutator as direct current by brushes.

Voltage reduction is, therefore, brought about principally in the transformer, making unnecessary wasteful resistance in the battery circuit. The direct current delivered is pulsating, the heating effect of which is less than with straight direct current. Therefore, charging can be done at a higher rate and in less time. It is a very rugged, compact machine; there is nothing delicate about it. It comes complete, with switchboard and all necessary instruments in place. All there is to do is to connect the two power leads, attach the battery leads and you are ready to charge. There is no extra equipment or accessories to buy.



Anyone can connect it up, start it and stop it. It requires very little care, aside from keeping it well oiled and the commutator clean, as in the case of an ordinary motor. There are four models of the Stahl rectifier for battery charging, models S and SX have three direct current charging circuits. The model N (illustrated) has two circuits and the model M one circuit. Rectifiers in any of these models are furnished to operate on 110 volt or 220 volt power circuits. The voltage must be specified, however, in ordering, as the machines do not operate interchangeably on 110 and 220 volts.

Manufactured by Stahl Rectifier Co., 1401-1405 West Jackson Boulevard, Chicago, Ill. Price, model N, double circuit, $220 complete. Write for literature and prices of other models.

$2.00 PER SET
ADVANCE
White Stripe
TRANSMISSION LINING
FOR
FORD CARS

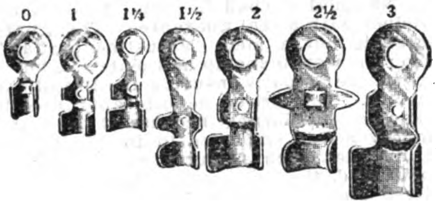
White Stripe Transmission Lining for Ford cars. A treatment has been produced by the Advance chemists which resists and neutralizes the action of hot oil on cotton fiber. A mechanical method of applying this treatment to the woven fabric also has been devised by the manufacturing department of the Advance Corporation. This successfully introduces the chemical formula into the cotton fabric and so thoroughly saturates every fiber that Advance White Stripe Lining retains its heat and oil resisting qualities for a remarkably long time.

The White Stripe process does not harden the fiber of the cotton lining. On the contrary, it keeps it soft and pliable, so that it has ideal braking surface against the drum of the car throughout its life.

The White Stripe product is sold ready boxed in sets of three or in rolls. Every foot or strip is marked with the white stripe.

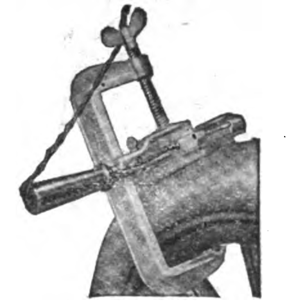
Manufactured by Advance Automobile Accessories Corporation, 56 E. Randolph St., Chicago, Ill. Prices: In boxes, $2 per set of 3; Rockies west, $2.25; Canada, $3. In rolls, 32 cents per foot; Rockies west, 35 cents; Canada, 40 cents.

Copper Terminals (standard "Lug" type). These are made of copper of proper thickness to work well. They are of high grade material and the best workmanship. No. 0 is a small primary wire, 5/32 inch. The others are: No. 1, regular primary wire, 7/32 inch; No. 1¼, narrow rim primary wire, 7/32 inch; No. 1½, long neck primary wire, ¼ inch; No. 2, regular magneto, 5/16 inch; No. 2½, large magneto, ⅜ inch; No. 3, large secondary, ½ inch.



Manufactured by the Fitzgerald Manufacturing Co., Torrington, Conn. Price per 1000, $2 to $7. For price and delivery of any style not illustrated send samples or blue prints.

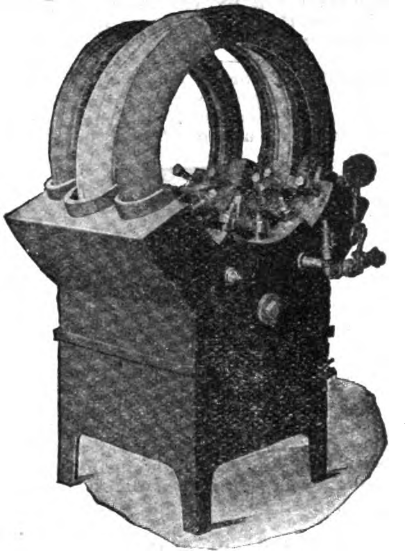
Shaler Home Garage Model handles every kind of tube and casing work that the average motorist will care to undertake. It is splendid for use at home where practically all repairing is done. Dealers should recommend it as a vulcanizer for use where electric current is accessible.



Tube and casing surfaces are 2½x7 inches—twice the size of any other motorist's vulcanizer. Electricity is the safest heat for vulcanizing when temperature is regulated automatically as in this vulcanizer, and conflicts with no garage regulations. Thermostatic heat control maintains the exact vulcanizing temperature so that a tire cannot be overheated, and by maintaining this temperature as long as necessary, permits curing through the thickest tread as well as making superficial repairs. Upon connecting the vulcanizer to any lamp socket the temperature quickly rises to the required degree and remains there as long as the current is turned on. No regulating is required. All parts of the repair are heated alike. When several repairs are to be made in succession the hot vulcanizer can be moved from one to the other by the cool handle. One or two tubes can be mended at a time. Outfit includes tube shelf, 10 foot conducting cord, thermometer, repair material and illustrated instructions. Current consumption 70 watts. Weight, 13 pounds.

Manufactured by C. A. Shaler Co., Waupun, Wis. Price, type D, No. 83, polished nickel, for D. C. or A. C., $12.50. When ordering, specify voltage of your city current.

Zwebell Ribbed Retreader and Tire Rebuilding Machine. This machine is designed to meet the demand for a moderate priced equipment, to provide a shop with a means of rebuilding a tire in sections or complete. The machine is of the en bloc type, having three one-third circle cavities with cross sections of 3½, 4½ and 5¼ inches respectively, and will handle any size tire from 28 by 3 to 38 by 5¼. The cavities are deep enough to cure the tire over the beads when desired. The boiler is self-contained, using gas or kerosene as fuel to generate steam. The ends of the cavities are provided with semi-curing flanges, to guard against any breaks in the cure.

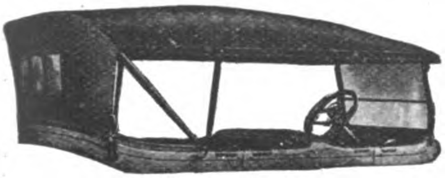


Manufactured by Zwebell Brothers Co., 482 Milwaukee St., Milwaukee, Wis. Price, machine complete with equipment, $550.

Norwesco Soldering Stick goes much farther than soldering salts, as all waste is eliminated. Materials necessary to a perfect soldering flux are contained in this stick, which is of extra large size. No acids or other materials are used in the manufacture that will injure insulation or electrical work. It is economical because of the small amount necessary to prepare the joint. The stick is firm and will not crush or break easily. The stick holds its form, making it easy to handle. It is wrapped in wax paper.

Manufactured by the Northwestern Chemical Co., Marietta, O. Price, sticks, 1x5½ inches, 25 cents.

Gordon Seat Covers are made of specially woven fabrics. All edges are bound with artificial leather and arm rests are covered with it. Extra strong glove snap fasteners are used to make attaching the covers quick and easy. Gordon three-piece seat covers with the "Sectional Overlap Lazy-back" please with their attractiveness and add to the riding comfort.



The overlapped corners yield to every movement of the upholstery. When you lean back they give so you can enjoy the comfortable cushions. The overlap relieves all strain on fabric and fastenings because its flexibility permits each section of the covers to conform to the movement of the upholstery without strain on any part. It yields as you lean back and when you get up it is carried back to place by the upholstery. If a spot is damaged by some unusual wear or a bad stain, your whole set of covers is not ruined, only the damaged section needing to be replaced.

Manufactured by the J. P. Gordon Co., 306 N. Fourth St., Columbus, O. Write for literature and prices.

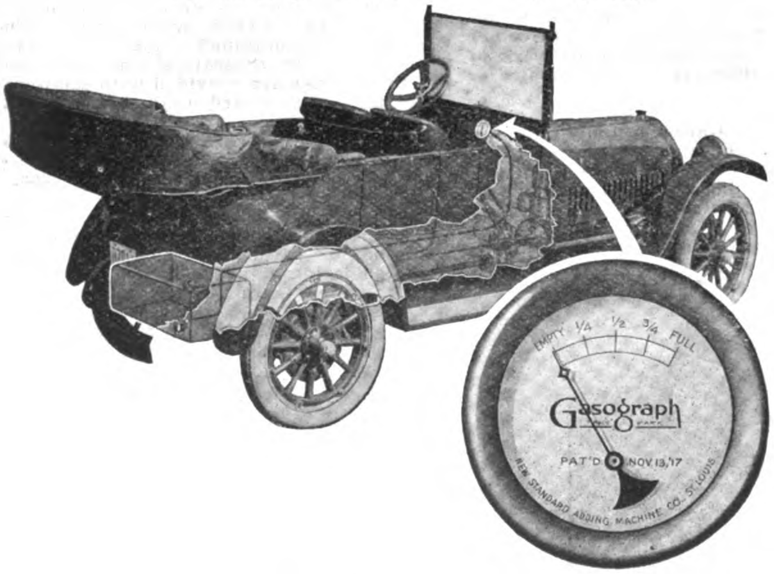
Never-Burn Engine Enamel. When your engine gets marred, scratched and rusty, a coating of Never-Burn will make it neat and attractive again. Never-Burn is applied with a brush and needs no filler. The heat of the engine bakes the enamel and it adheres like a part of the engine itself. It will not crack, chip or scale. It comes in two finishes, gloss black and battleship gray.

NEVER-BURN
NORWESCO
ENGINE ENAMEL

Manufactured by the Northwestern Chemical Co., Marietta, O. Price, half pint cans, 50 cents; pint cans, 85 cents.

The Gasograph Dashboard Fuel Indicator is a tell-tale device that indicates within a safe distance the quantity of gasoline in the tank. It has a measuring scale of from "full," three-quarters, one-half, one-quarter, and "empty." It is mounted upon the dash in plain view of the driver and is connected to the rear or front tank by copper tubing, the pressure of the weight of the gasoline being transmitted through the tubing to the instrument on the dash. It works automatically, for it has no floats or wires and requires no attention once installed. The unevenness of road conditions has no effect upon the instrument and temperature variations are automatically compensated. The tubing has a connection that is screwed into the drain opening of the tank and it is easily installed, requiring no drilling of holes.

Manufactured by the New Standard Adding Machine Co., St. Louis, Mo. Gasograph for rear tank, $7; for front tank, $6.

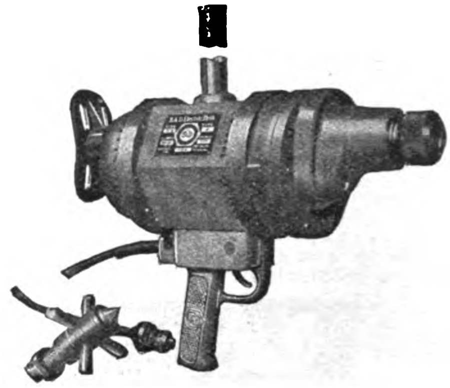


Columbia Storage Battery. The point of particular importance to the accessory and garage trade regarding the Columbia storage battery is that this battery is sold directly through the jobbing trade to the dealer. In working out the details of the sales plan the National Carbon Co., Inc., has made it possible for every dealer to get his share of the storage battery business. What is more, it is not necessary according to the Columbia plan to carry an immense stock of batteries and parts with a large amount of capital involved and provide a complicated expensive repair service department in order to sell Columbias. The central distributing service stations carry complete stocks of Columbias and make it possible for the dealer to draw on these service stations for their supplies.

The good faith in Columbia prompted the National Carbon Co., Inc., to back its product with a real guarantee. This guarantee is not a mere "adjustment affair" covering workmanship and material, but a guarantee actually insuring the life of the battery. This broad, definite guarantee is made possible largely because of the many improvements embodied in the Columbia. It includes such features as the honeycomb grid, the universal terminal, the inclined plate feet, the acid proof battery case and many others.

Manufactured by the National Carbon Co., Inc., Cleveland, O. Write for literature and prices.

Black & Decker Drill. The Black & Decker Manufacturing Co., Baltimore, Md., maker of B. & D. Portable Electric Drills, "With the pistol grip and trigger switch," has added a new sze drill to its line on which it is now making deliveries. This drill has a capacity of ⅞ of an inch in steel and weighs only 27 pounds and is equipped with a removable No. 2 Morse Taper Socket to take taper shank drills up to ⅞ inch in diameter.



The drill measures 5¾ inches by 17 inches long and has an offset spindle 2¾ inches from the center of the spindle to the edge of the frame. This drill is also equipped with a light weight, high powered, series compensated motor which delivers a maximum output of more than one-half horsepower. Its light weight and the automatic control provided by the "pistol grip and trigger switch" makes this drill highly adaptable to a wide variety of work.

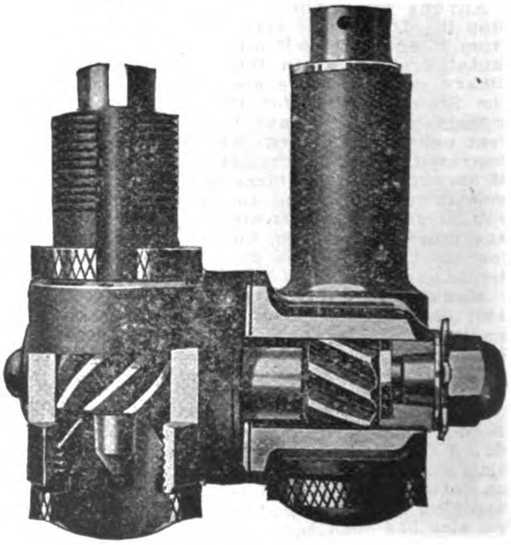
Made by the Black & Decker Mfg. Co., Baltimore, Md. Prices quoted on request.

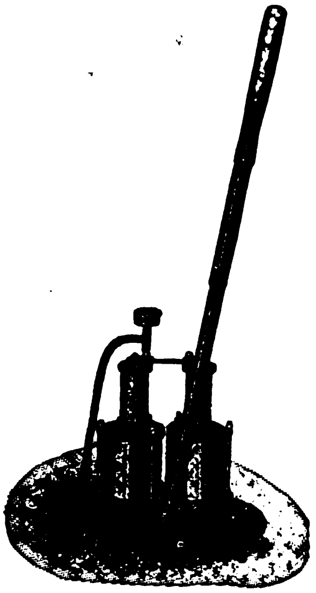
F. W. S. Swivel Joint. F. W. Stewart, manufacturer of a number of accessories, is a firm believer in the F. W. S. Swivel Joint for speedometer drives and is putting out a novel idea for the jobbers' salesmen to demonstrate the quality of that swivel joint by showing the "inside of the works."

The swivel joint furnished has sections cut out, as shown in the illustration, displaying the various points of superiority so that they may be readily understood by those not entirely familiar with the structural details of such devices.

They are sent out to jobbers for the use of their salesmen when calling on their trade. Owing to the considerable expense in producing these cut out swivel joints, they are not being sent broadcast, but any recognized jobber may secure a number sufficient for his salesmen.

Manufactured by F. W. Stewart, 1404 S. Michigan Ave., Chicago, Ill. Prices quoted on request.

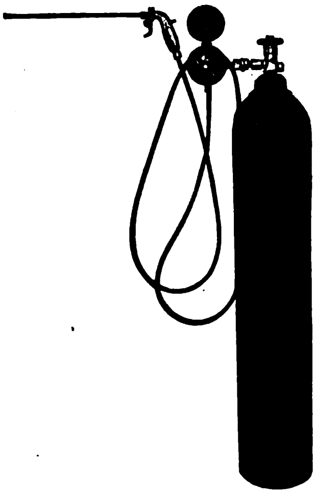




"The "Dead Easy" Tire Pump has made innumerable friends because of the laborious work it saves. The slogan is, "Dead Easy Users Are Dead Easy Boosters." The pump is well made and gives long service. It does away with the back-breaking operation of the hand pump and a woman can easily operate it.

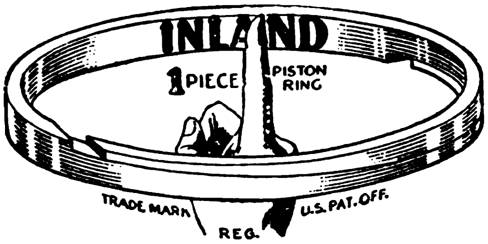
Manufactured by the Globe Manufacturing Co., Battle Creek, Mich. Write for literature and prices.

Dyer Decarbonizing Outfit is for cleaning automobile, marine and stationary engines using gasoline, kerosene or crude oil. The apparatus as shown in the cut is connected to an oxygen cylinder and when ready for use consists of a style A decarbonizing torch, oxygen pressure regulator, length of high pressure hose and connections. The nozzle of the torch is flexible and can be bent so that it may be directed around corners and up into the cylinder head. One hundred cubic feet of oxygen will clean between 26 and 40 automobile cylinders with this outfit.



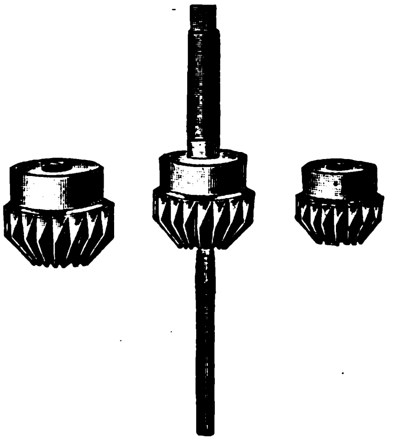
The G. H. Dyer Co., 155 Brookline St., Cambridge, Mass. Write for prices and literature.

Inland One-Piece Piston Ring. This is a new type, the objects in view having been to equalize the radial pressure of the ring against the cylinder wall all around the circumference and to obviate leakage through the cut in the ring. It is a concentric ring with the cut extending half way around the circumference. The ends are given an elliptic form to reduce their outward pressure. Such a ring most nearly fills the ring groove and requires a minimum depth of groove for a given pressure against the cylinder wall, which is important in these days of high speed engines with light reciprocating parts.



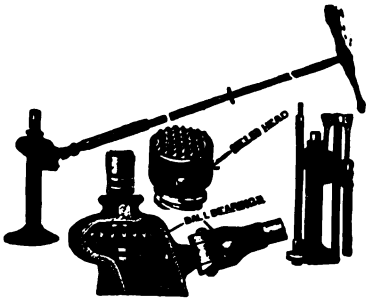
Manufactured by the Inland Machine Works, Eighth and Mound Sts., St. Louis, Mo. Prices, $1.25, $1.50 and $1.75.

Sioux Valve Seat Reamer. This refaces the valve seat perfectly. It removes all carbon pits and irregularities. It faces the seat at the right angle and reduces the time needed for valve grinding several times. The reamers may be had in 30, 45 and 60-degree angles and in any sizes to fit valves from one inch to four inches diameter. Pilot stems are provided in all sizes. A Sioux Ford Valve Seat Reamer is also made.



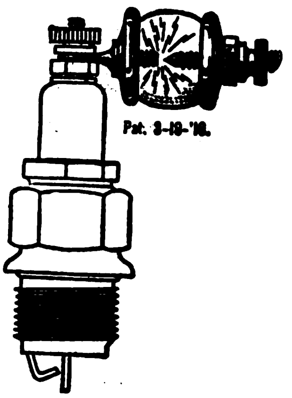
Manufactured by Albertson & Co., Sioux City, Ia. Write for prices and literature.

Kimball Jack. The Kimball ball bearing auto jack has a long handle, which permits lifting any car without getting under it. It has a diamond point hardened steel top with a bulldog grip that holds anywhere, on any bolt, spring or clip. The ball bearings carry the lift and thrust reduces friction and make jack work easy. There are no pawls, no ratchets, no kick-backs or handle blows. The ball socket holds the handle rigid while sliding the jack under the car and prevents it falling over. The Kimball jack is so constructed as to allow its free use in limited and inaccessible positions. A special heavy type or truck jack is also made.



Kimball Jack

Edward A. Cassidy Co., Inc., Madison Ave. at 40th St., New York, N. Y. Kimball Jack, price, $7; truck jack with 44-inch handle, $15; extra 18-inch sections for truck jack handle, $1.



The Marvel Spark Plug Intensifier overcomes ignition trouble with internal combustion engines. The spark that is produced at the point of the spark plug when the spark gap is in series with the spark plug, results in a fatter, stronger, better spark than would otherwise be produced. The spark produced with the gap permits the use of a leaner mixture, that not only saves gasoline, but also cuts down carbon deposits in the cylinders. This is because carbon comes largely from the partially burned gasoline, resulting from the use of too rich a mixture.

Manufactured by the Universal Manufacturing and Sales Co., 552 West Harrison St., Chicago, Ill. Prices quoted on request.

Jack Frost Radiator and Engine Robes. The advantage to be found in the use of the radiator cover is becoming so thoroughly known that it is needless to dwell at length on this. The Jack Frost Radiator Cover keeps the warm air in and the cold air out, and effects much better engine operation and makes starting easy. It prevents freezing and also stops rapid expansion and contraction of finely adjusted parts.

Manufactured by the J. P. Gordon Co., Columbus, O. Write for literature and prices.

Carbonox. There is no longer any need for going to the expense of scraping cylinders and pistons to remove carbon. An application of Carbonox will do the work in 30 minutes. Simply pour it into each cylinder, leave for 30 minutes and start your engine. The carbon will have been loosened and will blow out through the exhaust. Use it after each 500 miles. A can cleans the average six-cylinder motor three times. Carbonox does not make a motor hard to start. It is advisable, however, to pour a litle oil through the priming cups before starting.

CARBONOX
CARBON REMOVER

Manufactured by the Northwestern Chemical Co., Marietta, O. Price, pint cans, 75 cents.

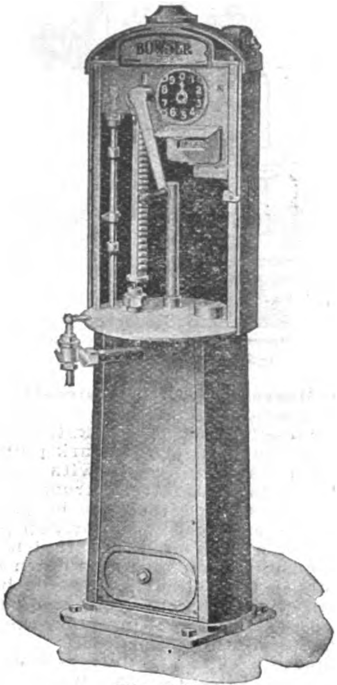


Fig. 241.

Bowser Pumps for Use with Underground Tanks are made for both outdoor and indoor use. The pump as illustrated by Fig. 241 pumps gallon, half gallon or pint. It locks, records and filters. This pump is for outdoor use.

The pump as illustrated by Fig. 243 is also for outdoor use. It is especially designed for kerosene and other light non-volatile liquids. It discharges gallons, half gallons and quarts. The pump records deliveries and locks.

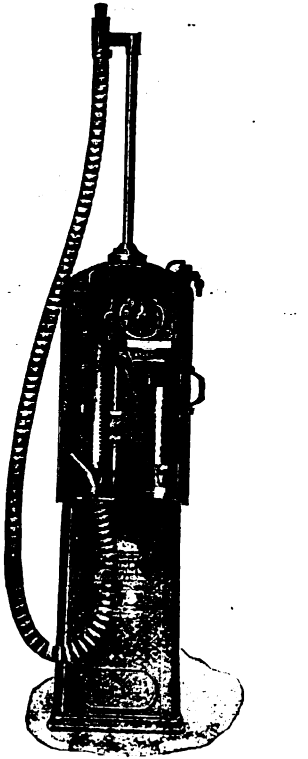


Fig. 243.

Another pump for outdoor use is that illustrated by Fig. 245. This is especially designed for lubricating oil. It measures half gallon, quart or pint.

All of the Bowser pumps are so well made that they will give long and accurate service. The pump as illustrated by Fig. 101, which is for indoor use, is built entirely of metal, strong and durably constructed. All working parts are carefully protected by the outer castings and are machined and accurately fitted. All joints that come in contact with gasoline are absolutely tight, thus preventing accidental evaporation or leakage.

The cylinder is made of seamless brass tubing with no joints to break loose or cause trouble. The valves, valve seats, stuffing boxes, etc., are made of selected materials suitable for the liquids to be handled.

"Pacemaker."

This Bowser gasoline pump is so designed that it will accurately discharge on a complete stroke of the plunger five gallons of gasoline. Any intermediate gallon, half gallon or quart can be accurately discharged by the use of the graduated scale attached to the pump.

The Bowser "Pacemaker" pump is the latest outdoor gasoline dispensing equipment. It will discharge two gallons at a complete stroke or any intermediate quantity desired. The pump is built entirely of metal, strong and durable. All working parts are carefully operated by an outer opening, which is so arranged that there are no doors or slides necessary. It is provided with a double dial. A large disc is in plain view of the purchaser, which will avoid any dispute as to the quantity delivered. A small discharge register is in view of the operator. This pump filters, tallies individual deliveries and records totals. A white opal glass globe is placed at the top of the pump, which is wired for electricity.

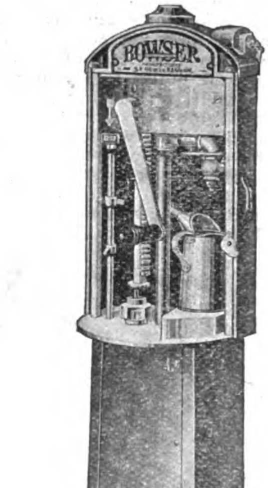


Fig. 245.

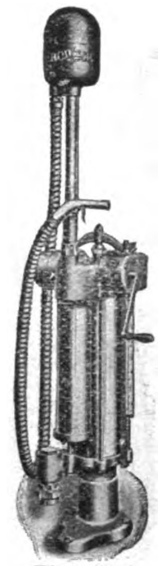


Fig. 101.

Manufactured by the S. F. Bowser & Co., Inc., Fort Wayne, Ind. Prices quoted on request.

The Burke Condenser for the cooling system of an automobile attaches to the filler of the radiator in the same place and manner as a motometer. It is made in the form of a miniature "still," similar in many respects to the device used in making "moonshine" whiskey. It consists of a conical shell with a relief valve at top, surrounded by a "worm" coil of copper tubing.

The shell receives all vapors, whether of water or of anti-freeze mixtures, which are driven out of the solution by heat. These vapors are restored to liquid form in condenser and returned to radiator.

The chief advantage of the Burke Condenser is the motorist can operate his car with the overflow pipe closed, preventing the loss of either water or anti-freeze mixture from splash or evaporation, with the result that alcohol, which is highly efficient as a freeze preventer, because of its low freezing point, can be used in the water without the usual danger of evaporation. It is claimed by the inventors that one filling of the tank with the proper percentage solution of alcohol will be sufficient to protect a car from freezing for an entire winter season.

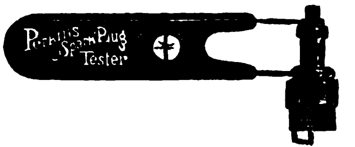
Another advantage claimed for this device is that it prolongs the life of the radiator and eliminates the need for constant refilling of the cooling system, which in turn goes a long way toward preventing the introduction of foreign matter and chemical impurities with the water, which are known to cause the formation of scale and rapid deterioration of metal parts with which they are brought in contact.

The Automobile Devices Co., Philadelphia. Prices: Standard model, $10, for all standard cars; Little Giant model, $5, for small cars; Ford model, $5, for cars of the last named type; Super-Giant model, $15, for trucks of all types.

Duplex Fishing Creels. Duplex Fishing Creels are made of heavy waterproof canvas, reinforced with spring steel, rust proofed metal ribs and fitted with covers that fasten with pull down snap hooks. Air circulation is secured by metal eyelets inserted in front, sides and bottom and through the holes in the top. These creels may be kept sweet and clean by scalding in water, as by this process the fabric is not damaged. They are so designed as to permit folding and may be carried in the pocket or tackle case when not in use.

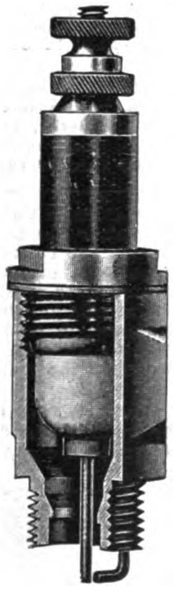
Manufactured by the Planet Co., Westfield, Mass. Price quoted at request.

The Perkins Spark Plug Tester is made for the purpose of locating faulty ignition plugs and for setting the spark gaps in all plugs so that they will be in "tune." The tester is made in two colors, black and red, neatly finished of high grade insulated composition. Using this device assures one of maximum efficiency of the spark plugs.

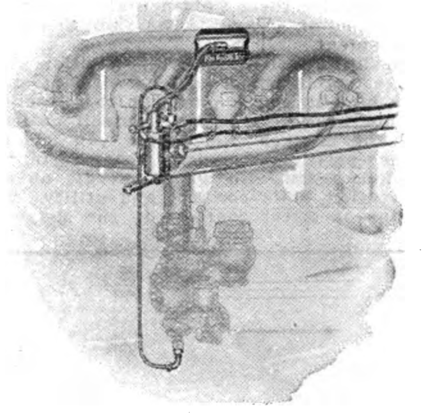


Manufactured by A. D. Perkins, 1777 Broadway, New York, N. Y. Price, 75 cents.

Sootless Plug. The J. M. Soot-Proof Plug is one of unique construction, having a double explosion chamber, with the sparking points extended well into the mixture. The engine end of the plug is well protected, having a porcelain cap, so arranged and enclosed that it is protected against breakage by a metal housing. There are no asbestos packings used in the construction and it is said that compression and high pressure tends to tighten rather than loosen it. Being practically oil and soot proof, it is especially adapted for use in engines that use a large amount of lubricating oil.



Manufactured by the Oakes & Dow Co., Boston, Mass. Price quoted at request.



Perfection Five-in-One Vitalizer. An interesting device is being put on the market, designed for making the starting of an engine in cold weather an easy matter. This device is called the Perfection Five-In-One Vitalizer and may be attached to practically any gasoline engine.

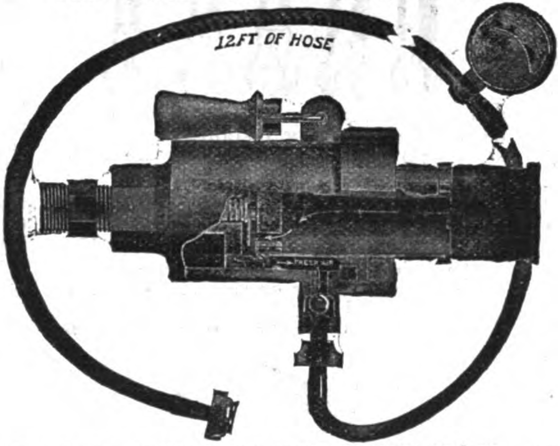
The device comprises a combination electric super-heater, a primer, an accelerator and an exhaust heater and decarbonizer, all in one. The electric superheater is controlled by a switch on the dash, draws current from the storage battery (or from four dry cells), and when turned on, instantly vaporizes a charge of gas for the engine, enabling one to start a cold engine very readily. The priming device is actuated by an arrangement which may be attached to the dash; the exhaust heater is had from the exhaust manifold through a flexible tube to the device.

The manufacturers sell the device under a broad guarantee and with the understanding that if it is not satisfactory it may be returned within 15 days from date of purchase and money will be refunded.

Manufactured by the Snyder Products Co., 4046 Washington Blvd., Chicago, Ill. Price, $10.

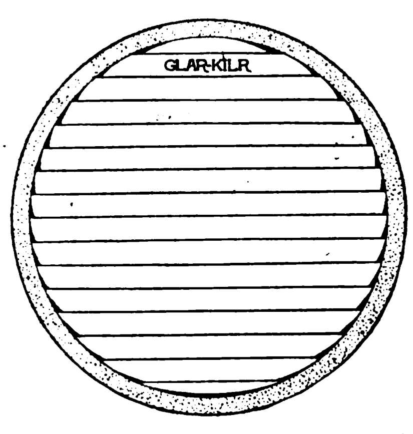
National Telescope Pump. Proper tire inflation pays big dividends and, conversely, poor tire inflation means big expenses. The average car owner pays but little attention to his tires so long as there is air in them, since the labor involved in using the hand pump is so great.

To make tire pumping easy and to utilize the power of the engine for the purpose, the National Telescope Pump has been designed. This device is fitted with a steel piston which is constructed with rings, similar to an engine piston, and so designed that only fresh air is forced into the tire. It is screwed into the spark plug hole, where it may be left permanently when a shut off is used. With the device is furnished a woven cover air hose 12 feet long, a dial pressure gauge and fittings. The shut off comes extra.



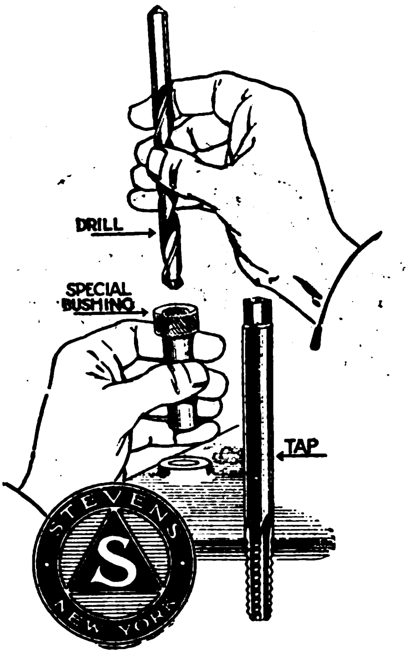
Manufactured by the National Motor Supply Co., Painesville, O. Price, $9. Shut off valve, $1.25.

The Zorger Glar-Kilr Lens is composed of sectional cylinders one-half inch in width, with the axis horizontal. These sections are adjusted so that the rays cross or come to a focus three inches in front of the reflector. This gives a one-half inch spread every three inches or a two-inch spread every foot. The sectional cylinders are made so that the light does not attain an altitude of more than 42 inches in 200 feet. At 200 feet the spread from each ½-inch section of the glaring half of the reflector is 400 inches, 90 per cent. of which is stated to be below horizontal is diluted by diffusion approximately 800 times, not nearly sufficient to dazzle an approaching driver. The maker states that by using the cylinder he gets the same diffusion as any diffusing lens and in addition gets refraction or bending down of the rays. This lens bends rays of light down and diffuses them along the road where they are needed.

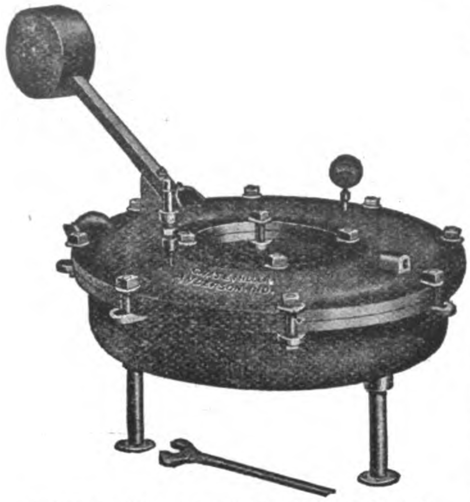


Manufactured by the Zorger Lens Co., Inc., Champaign, Ill. Price quoted at request.

The Stevens No. 100 Cylinder Tap and Drill Set is designed to minimize trouble in removing broken pieces of cylinder head screws and consists of adrill, a tap and a bushing, which fits the hole in the cylinder head. To use the set the bushing is put into place in the head and with this as a center the broken parts of the screw is drilled. The drill is of such a size that all of the screw body eexcept the threads is removed and the balance is removed with the tap, leaving a tapped hole taking a screw the same size as originally.



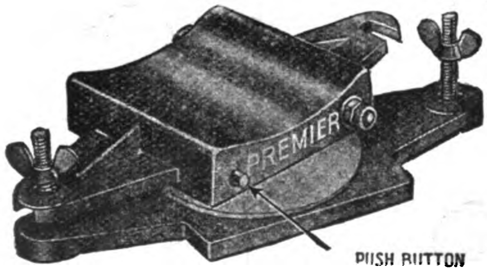
Manufactured by Stevens & Co., 375 Broadway, New York. Price, $1.



Miller's "Economy" Kettle Vulcanizer requires a very small amount of steam on account of its "doughnut" construction. It will repair from a 2½x28 inch to a 5x37 inch, inclusive, casing, having a capacity, which is governed by the size tires being repaired, of from two to four tires in one heat. It is made of cast iron and provided with a hinged lid and counter balanced weight to assist in raising the heavy lid. This counter balance can be adjusted so that the lid may be opened or closed with one hand, and when this lid is raised and is past the center of gravitation it stays open.

Manufactured by Charles E. Miller, Anderson, Ind. Price, furnished complete as large kettle, shipping weight approximately 800 pounds, $125. Vulcanizer may be equipped with gas burner, if preferred, at an extra cost.

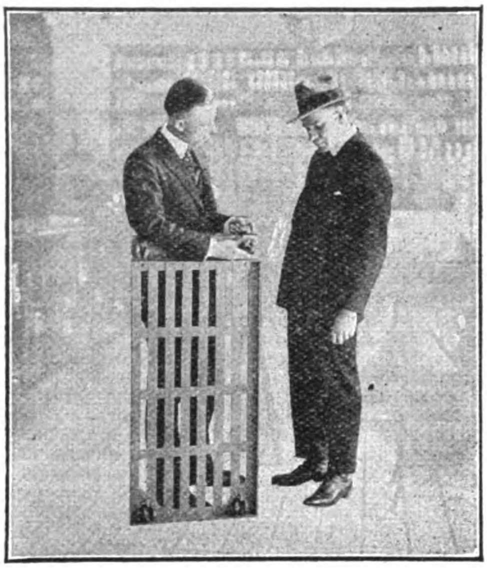
The Premier Automatic Electric Vulcanizer is of the portable type and while it occupies but a small space, together with the complete outfit for repairing practically any size injury to either tube or casing, it does its work quickly and efficiently. It does not do temporary work, but permanently fixes the cut and is absolutely automatic in operation, the heat being provided by electricity through connections with either the battery or lighting circuit. Premier Vulcanizers are furnished to operate either from 110-volt lighting circuits or storage batteries. The standard voltages of the latter type are 6, 12, 18 and 30 volts, and when operated direct off the storage battery on the car are positively guaranteed not to damage the battery or interfere with its efficiency for starting, lighting or ignition. The 110 volt type will operate from both alternating and direct current. In ordering the voltage to be used should be specified. Immediate deliveries can be obtained.



Manufactured by the Premier Electric Co., 4032-4042 Ravenswood Ave., Chicago, Ill. Price for complete outfit, $3.50.

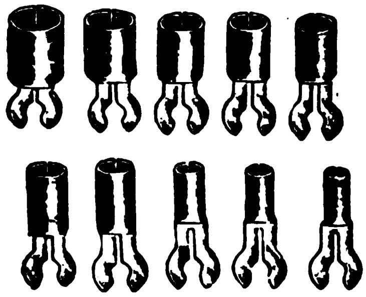
The Continental Creeper has big double wheel casters, heavy welded frame, rolls easy and will not break. The slats are steel bands and it is big and roomy and has a well padded head rest. Experience teaches that where cheap creepers are used an average of over an hour a week will be spent in their repair and this time, at the present high cost of labor, will pay for three Continental Creepers in a course of a year. The Continental is convenient.

A slight push changes the position. The large double wheel casters will not stick and bind in rough places in the floor. It is not necessary to lift yourself entirely off the creeper every time you change your position, because that caster is broken again. No waste energy, no aggravation, solid comfort and utility. The strips of metal conform to the shape of the body and the head rest is covered with oil proof cloth and can be readily cleaned or removed. It is big and roomy, 20 inches by 44 inches, and built for service.



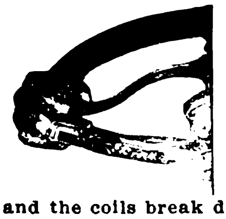
Manufactured by the Continental Auto Parts Co., Knightstown, Ind. Write for literature and prices.

Slip Snap Terminals are serviceable in practically all places, but particularly so on spark plug nuts, etc. These clip terminals enable you to disconnect the wires from the spark plug instantly and are a great help for the autoist. They are made in sizes to fit all standard cables.



Manufactured by the Fitzgerald Manufacturing Co., Torrington, Conn. Price per dozen, 50 cents; per 100, $3; per 1000, $20.

The Apco Watershed for Fords prevents water dripping on the coil and spark plug wires and filling up the spark plug recesses. For the same reason the car is apt to skip and the coils break down. This device absolutely protects all the wires in the most heavy rainstorm and subjects the engine to instant starting in wet weather.



Manufactured by the Apco Mfg. Co., Providence, R. I. Price, $1.

Mills Patch. This is the supreme self-vulcanizing patch for auto tires, motorcycle tires, rubber boots, hot water bottles or anything rubber will patch. Mills Patch meets the requirements of all climatic conditions. Its sticking qualities are not affected by heat or cold. Mills Patch self-vulcanizing outfit consists of a sheet of pure para rubber, a tube of rubber cement and a buffer.

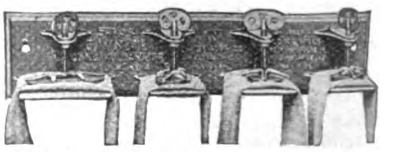
Auto Parts Co., 4103 Olive St., St. Louis, Mo. Price $1. If your dealer cannot supply you the Auto Parts Co. will send same postpaid on receipt of price.

Shaler 5-Minute Patch and Heat Units. The average user buys several packages each season, as they are used not only on tires, but on other rubber articles. Few accessories produce such a continuous resale. They are packed 12 of a size in air tight boxes.

Manufactured by C. A. Shaler Co., Waupun, Wis. Prices, round patch and heat units, 1¾ inches diameter, per box of 12, 75 cents; oblong patch and heat units, 2¼x1⅝ inches, per box of 12, 75 cents.

Shaler 5-Minute Garage Vulcanizer. This new Shaler vulcanizer meets the demand for an outfit to use the convenient Shaler patch and heat units in a commercial way. It uses the standard sizes of Shaler patches and in addition mends much larger cuts with the new four-inch ex-long patches. Makes four repairs at one time in five minutes. It hangs on the wall, taking little room.

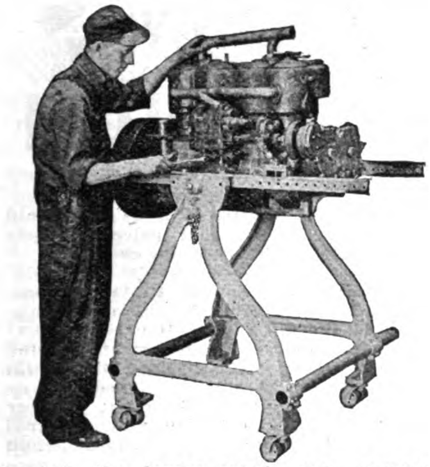
The Shaler patch and heat unit is always ready for instant use day or night. It is a complete unit—a compact combination of chemical fuel, vulcanizing pan and raw rubber patch. Simply clamp it over the puncture, light the non-flaming fuel and in five minutes you have a permanent, feather edged repair as strong as the tube itself. Included free is an assortment of patches.



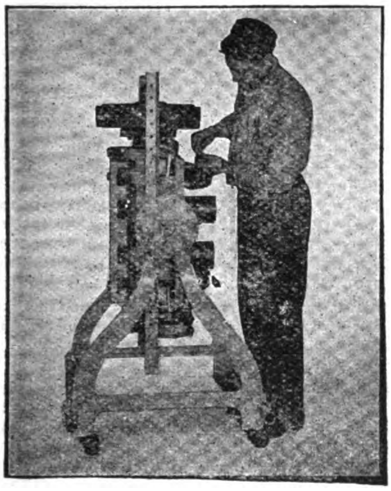
Manufactured by C. A. Shaler Co., Waupun, Wis. Price, type M, No. 4, $10.

The Continental Motor Stands handle all types of motors and is a real universal motor stand. Every facility should be given the mechanic so that he can work without stooping, bending, twisting or lying on his back on a dirty floor.

An engine in the Continental motor stand is properly supported so the mechanic can turn it to any position so any part can be brought to such position that work is convenient and good light available. The engine can be completely inverted, the lower crank case removed, which gives a position for scraping-in bearings—and such work as requires considerable time—of just the right height for convenience and good workmanship.



Continental motor stands can be turned to any desired position and solidly locked with a steel pin. Over 25 different locking positions allow the motor to be brought to any desired angle. The motor revolving with the axis of rotation at right angles to the crank shaft gives a range of adjustment that is ideal. The steel pins, you will note, are permanently attached to the stand by means of a chain that they may not be misplaced and are always at hand when needed.



Manufactured by the Continental Auto Parts Co., Knightstown, Ind. Write for prices and literature.

Norwesco Chemical Automobile Utilities. Norwesco products include the "Twelve-Twenty," which prevents frozen radiators; Skalex, a radiator cleaner, and Se-Ment-Ol, a radiator cement.

Alcohol solutions as a protection against frozen radiators have some points in their favor, but have one or two serious drawbacks. Alcohol evaporates very rapidly and so necessitates constant refilling of the radiator. Alcoholic solution constantly varies in strength and constantly varies in efficiency, so that one never knows to what degree his radiator is protected.

Salt solutions as non-freeze mixtures also have serious objections. They have a tendency to "find" leaks—tiny holes through which the water will not pass. The leakage causes short circuits of the wiring system. Salt solutions have a tendency to crystalize and clog the systems when evaporation has increased their strength too much.

NORWESCO
TWELVE-TWENTY
PREVENTS FROZEN RADIATORS

Norwesco "Twelve-Twenty" evaporates very slowly. It is safe and sure because it can be tested with an ordinary battery hydrometer. There is no mixing or dissolving—it is simply poured into the radiator from the can.

NORWESCO
Marietta
Chicago
The Chemically Correct Line
For Your Automobile

Manufacturers of Norwesco products make numerous other chemical automobile utilities. Among these are Top Dressing, Mohair Top Dressing and Lining Dye, Utility Black, for preserving the appearance of a car; Carbonox, for removing the carbon from cylinders; Soldering Stick, Plumbers' Se-Ment-Ol, Soldering Salt, Valve Grinding Compound, Rim and Gasket Shellac, Never-Burn Engine Enamel, Graphite Coating Rim Paint, Neatsfoot Clutch and Brake Compound, Automobile Furniture Polish, Prussian Blue, for use when scraping bearings; Fire-Fly, a chemical fire extinguisher; Pumice Hand Soap, Tire-Lac, Automobile Varnish, Aluminum Bronze, Tire Talc, Tire Mica and Soldering Paste.

Manufactured by the Northwestern Chemical Co., Marietta, O. Write for prices and literature.

The Continental Assembly and Welding Table is designed to speed up all types of bench work, lay out, inspection and welding. It is not necessary to lift the work that is being done off the table in order to get at the various parts, as the table may be unlocked and turned to the desired position so that the best light may be obtained with the least loss of time and motion on the operator's part. There is use for this table in every department from the tool room to the paint shop. It makes an ideal work bench or assembly table, and vices, jigs, etc., may be clamped direct to the table to adapt it to the required use. It may be used for continuous drilling operations by mounting several fixtures and loading and unloading one fixture while drilling in another.

The Continental assembly table is of substantial construction and well made. The table itself is heavy and well reinforced. It revolves on ball bearings, which makes it very easily moved, and the finished top makes it an ideal bench for lay out and inspection. It has 36 locking positions, and is instantly locked or unlocked by the foot. The two sizes of tables are interchangeable and both tables can be furnished with one pedestal.

Manufactured by the Continental Auto Parts Co., Knightstown, Ind. Write for prices and literature.

Cork Insert Fan Belt for Fords. A belt that has unusual merit is the Advance Cork Insert Fan Belt, which retards overheating. Most motor trouble is the result of overheating. This belt does not slip, as do ordinary fan belts. It is of durable construction and is economical because of its long wear.

ADVANCE
FAN BELT—FORDS
ADVANCE CORK INSERT FAN BELT FOR FORDS

Manufactured by the Advance Automobile Accessories Corporation, 56 E. Randolph St., Chicago, Ill. Price, $1 for 1917-18 Fords; 85 cents for 1916 and earlier Fords; Canadian prices: 1917-18 model, $1.50; earlier models, $1.25.

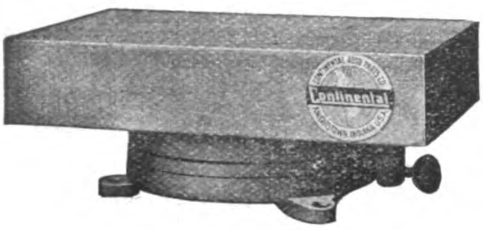
Black Gloss Enamel, a Blue Ribbon product, is for enameling automobile lamps, fenders, hoods, radiators and all metal parts. It is ideal for repairmen for enameling and retouching auto parts when the finish has been damaged or destroyed.

BLUE RIBBON
BLACK GLOSS ENAMEL
FOR AUTOMOBILE LAMPS, FENDERS, HOODS, RADIATORS, ETC.
MANUFACTURERS OF THE FAMOUS
BLUE RIBBON POLISHES AND SOAPS

It gives a smooth, bright and lasting finish and dries within a few minutes. For ordinary work one coat only is necessary.

Manufactured by the International Metal Polish Co., Inc., Indianapolis, Ind. Prices: One-half pint, 45 cents; one pint, 80 cents; one quart, $1.50; gallon, $5.

The Continental Battery Stand. Storage batteries are very heavy and in their repair it is necessary to constantly change their position in order to more readily get at the various parts. This takes a great deal of effort and besides considerable time is wasted, and the time of your skilled mechanics is very valuable.

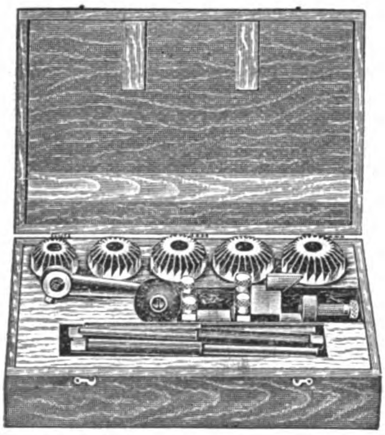


You will find the Continental battery stand to be of great assistance. Every battery bench needs several of these stands to help speed up the work, and the greater per cent. of the back-breaking lifting will be eliminated. It will encourage your mechanics to turn out better and cleaner work. This stand makes an excellent arrangement for displaying batteries on your counter, or in your show window. In fact you will find many uses for this stand other than battery repair work.

The Continental battery stand turns very easy, since it is on ball bearings and can readily be locked in any position. The top is made of one piece of hard wood 1½x7x10 inches, which eliminates the danger of short circuit, and will not be affected by acids. Handsomely finished in natural wood color and black enamel. Comes complete with screws for attaching to work bench. Shipping weight, 12 pounds.

Manufactured by the Continental Auto Parts Co., Knightstown, Ind. Write for prices and literature.

Sioux Valve Tool Set. Sioux valve seat reamers reface valve seats with the same dispatch, accuracy, smoothness and general satisfaction that the Sioux refacing tool turns the valves. The Sioux valve tool set is complete enough to take care of practically all the jobs that an average garage or auto repair shop is likely to get. It includes five reamers, 1⅝, 1⅞, 2, 2⅛ and 2¼ inches. 45 degrees (30 and 60 degrees can be had on request), three pilot stems, 5/16, ⅜ and 7/16 inches. The valve seat cutter is made on the reamer principle and is guaranteed to work with absolute accuracy and smoothness. The pilot stems are finished to accurate size, insuring perfect dimensions and accuracy.



The reamer heads are furnished in three angles, 30, 45 and 60 degrees and any sizes to fit the valve from 1½ inches to four inches in diameter. Pilot stems are provided in all sizes.

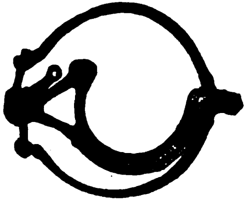
Manufactured by Albertson & Co., Sioux City, Ia. Price, $22.50.

BLUE RIBBON
Hold-on Patch
For Tubes Tires and all Rubber Patch Repairing
International Metal Polish Co. Inc
Indianapolis, Indiana U.S.A.
PRICE $1.00

Hold-On Patch. This is a Blue Ribbon product for tubes, tires and all rubber repairing. It is an elastic rubber patch, manufactured from the finest grade of rubber, and is prepared especially for patching purposes without the use of heat, which increases the strength of the tube at puncture point without loss of resiliency. Hold-On Patch can be applied easily and quickly at any time where trouble occurs. It is invaluable for blow-outs in tubes and casings, owing to its self-vulcanizing qualities.

Manufactured by the International Metal Polish Co., Inc., Indianapolis, Ind. Prices, 25 cents, 50 cents, $1 and $1.50.

Holdford Brakes are high grade external, contracting brakes for Ford cars, which can be easily and quickly installed by any mechanic with a wrench, to act from the hand lever as emergency brakes, or from the foot pedal as service brakes delivering the braking power direct to the rear wheels at 100 per cent. efficiency and taking all strain from the rear axle, shaft, gears, keys and transmission bearings. The band and brace are of steel, the toggle crank and bracket are drop forgings and the lining J-M non-burn. Holdford brakes do not drag when released or worn and cannot rattle. No readjustment for wear is necessary, oiling is easy and they will outwear the car.



No changes, alterations or new holes are made when Holdford brakes are put on in place of the regular hand brake, which is removed or not, as desired. Extra pull rods, an equalizing bar and a hole in the foot pedal are the only changes necessary for substituting Holdford brakes in place of the regular transmission brake.

The G. H. Dyer Co., Cambridge, Mass. Hand brake, $10 per set net; foot brake, $15 per set net.

Soldering Paste. Solder will flow on and fuse easily when Norwesco Soldering Paste is used. This is a scientific compound for use on all classes of soldering work. It is more efficient and easier to handle than acid.

SOLDERING PASTE
NORWESCO
AVE. NET WEIGHT 2½ OZ.
SOLDERING PASTE

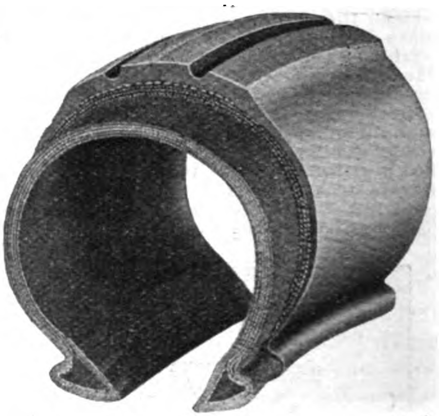
Manufactured by the Northwestern Chemical Co., Marietta, O. Price, 2½ ounce cans, 25 cents.

Rain-Sno Clear View Windshield Cloth keeps the entire glass clear by chemical action Rain, snow or sleet must run off because the chemical used in the manufacture of Rain-Sno is antagonistic to water or water vapor. The product contains no grease or oil or anything to soil the hands or smear the glass.

RAIN-SNO
CLEAR VIEW
WINDSHIELD CLOTH

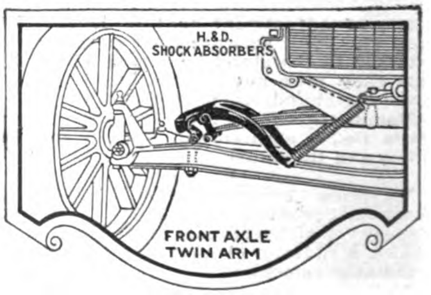
Automobile Sundries Co., 44 Bromfield St., Boston, Mass. List price, $72 per gross; single cloths, 50 cents each.

The Ever Last Resole is in fact a complete new tire without beads, and is applied over the old casing. It extends clear down over the beads and when applied to the rim it cannot be distinguished from a new tire. It is not a "sewed on" or "double tread," but is built right on over the old casing, and becomes an integral part of it. It can be successfully attached by any repair man or vulcanizer. It is made exactly like a new tire of three plys of close woven 21½ ounce long staple cotton fabric. Each ply is treated with a heavy coat of pure rubber and the tread stock is built over this fabric body. Prompt deliveries.



Manufactured by the Ever Last Tread Co., Inc., Indianapolis, Ind. Price quoted at request.

H. & D. Shock Absorbers are constructed in keeping with the principle that the tension is different on the upward and downward thrust, which fact is claimed to make this shock absorber exceptionally efficient. The makers say that these shock absorbers save tires by preventing side sway and pounding. Vibration, which loosens up bolts and screws, is eliminated, as is also rattling. Can take care of 1919 requirements.



Made by the H. & D. Co., Inc., Goodland, Ind. Price per set of four, $10.

BIG TRUCK DEMONSTRATION PLANNED IN MACON.

The Macon, Ga., Chamber of Commerce is planning a motor truck demonstration day, which it hopes to make the greatest event of its kind ever in the South. It will be held the latter part of March or early in April.

More than 250 trucks and cars will be exhibited. Following a parade through the business section of the city they will be divided into six trains and will go out into as many directions to terminal points of about an equal distance from the city. On the outgoing trip the trucks will be loaded with merchandise and on the return with live stock and products.

Stops will be arranged along each route and adem onstration rally will be held at each terminad point. The personnel of each train will include specialists whose duty it will be to record every phase of the test concerning mechanical operation and cost, highway and bridge conditions, tonnage, time, etc.

Truck dealers and manufacturers have promised hearty cooperation. Merchants, farmers and city and county officials will also assist in making the event a success.

NEW TURNBULL TRUCK DISTRIBUTORS.

Carl Changstrom, 2020 Farnum street, Omaha, Neb., has been appointed western sales manager for the Turnbull Motor Truck and Wagon Co., Defiance, O. The Turnbull company has closed contracts with these dealers and distributors for the disposition of the Defiance 1½ and two-ton motor trucks:

Standard Motor Car Co., Omaha, Neb.; Jackson Motor Co. of Missouri, Kansas City, Mo.; Mound City Buggy and Auto Co., St. Louis, Mo.; Gale Truck and Supply Co., Sioux City, Ia.; R. D. Rockstead, Milwaukee, Wis.; H. W. Elson, Peoria, Ill.; Frank A. Gillis Motor Sales Co., Ltd., Halifax, Nova Scotia; Ohio Valley Implement and Transfer Co., Cincinnati, O.; Biscoe & Barnes, Mine Run, Virginia; Jefferson Cooperage Co., Ranson, W. Va.; D. T. Reeves & Son, South Boston, Va.; Davis & Wood, Charlottesville, Va.; C. D. Nottingham, Sea View, Va.; Ambia Lumber Co., Ambia, Ind.

EARNINGS OF AMERICAN BRASS CO. DECLINE.

The report of the American Brass Co. for the year ending Dec. 31, 1918, showed earnings for the capital stock of $26.61 a share, as compared with $47.39 in 1917. Operating expenses were heavily increased. Net profits for 1918 totaled $3,992,219, against $7,109,177 in 1917 and $10,991,699 in 1916.

CONTINENTAL MEN AT SHOW.

George W. Yeoman, treasurer, and John G. Painter, sales manager, represented the Continental Motors Corporation at the New York automobile and truck shows. The company had no exhibits this year for either the New York or Chicago show.

Auto Dealers Want National Shows Given Over

The unexpected successes of the New York and Chicago automobile shows, coming so soon after the virtual closing of the war, and while many of the large manufacturers are still in a stage of readjustment from the making of munitions to peace time production, led many motorists to ask whether the local dealers, who have conducted the shows, would assert the right to hold the annual shows next year at the expense of the manufacturers affiliated with the National Automobile Chamber of Commerce, under whose auspices the national shows have formerly been held.

This is an interesting question that will be thoroughly discussed by the prominent motoring interests during the next few months. The managing committee of the New York dealers, realizing that the show was a bigger success than many had expected, are strongly inclined to continue as the automobile show managers in New York City. Charles H. Larson, in discussing the situation with Charles M. Brown, president of the New York Dealers' Association, and William C. Poertner, said very positively:

"I can see no right or reasonable way that can now be used by the manufacturers to take the show management from the dealers who are distributing the cars in the metropolitan territory. Many of the manufacturers are taking the view that the time in the industry has passed when it is necessary for its national organization to conduct the national shows. The industry has grown to such an extent that the big individual shows, as those in New York, Chicago, Boston, Minneapolis and Philadelphia, possess most of the features of the former so-called national shows hitherto restricted, so far as name was concerned, to New York and Chicago.

"The New York show under the dealers and with the co-operation of the manufacturers, which has been splendidly given this year, will naturally be regarded as the big national show of the year, for it is the one in which the makers always strive to give the first general exhibit of their new models. The New York dealers are ready to give next year's show as it is logically a dealers' event."

Charles A. Stewart, manager of the show, expressed similar views. The members of the National Automobile Chamber of Commerce, which contains over 120 of the big car makers in the country, abandoned the plan to give the customary 1919 show before the signing of the armistice as a war measure, and after the cessation of hostilities they voted to adhere to that decision. The New York dealers, as well as the dealers in Chicago, stepped into the breach at once and saved the situation for the motor car industry as to the big shows of the year, and it is now admitted that the stability of the motor car industry has been presented in a more favorable light before the public than would have been the case if the two big shows of the year had been omitted.

REDUCTION IN PRICE OF GASOLINE IS EXPECTED.

As a result of the action of the United States Shipping Board in turning back 145 tankers which had been commandeered for war purposes, and which have been returned to their owners, a reduction in the price of gasoline is expected. Most of these vessels will be employed to transport oil to this country from Mexico. The total dead weight tonnage of the ships returned is 1,140,000.

JONES NOW EASTERN REPRESENTATIVE FOR TORBENSEN.

The Torbensen Axle Co., Cleveland, O., manufacturer of internal gear drive truck axles, announces the appointment of W. Jones as eastern sales representative.

W. M. Jones, Eastern Sales Representative Torbensen Axle Co.

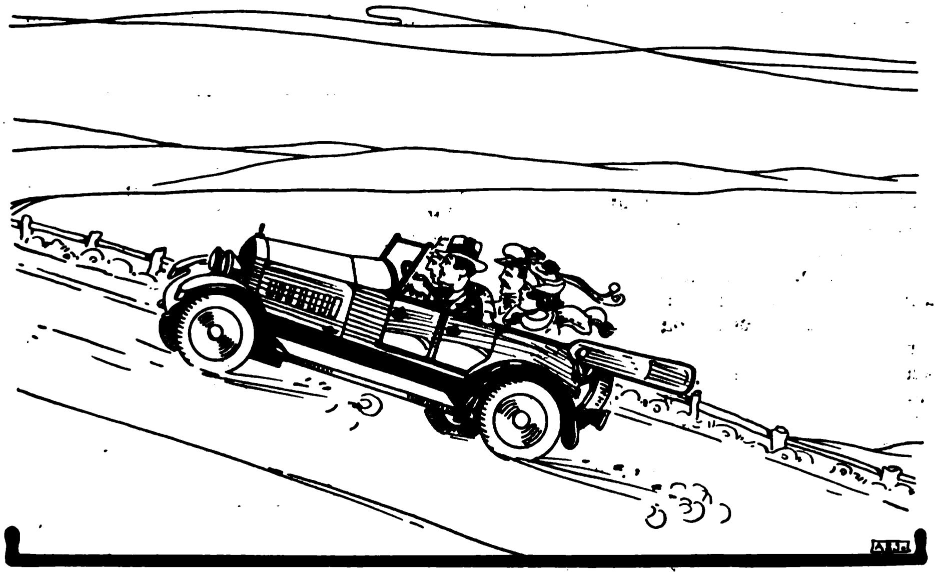
Mr. Jones is well and favorably known in the automobile industry. For the past nine years he has been connected with the Sheldon Axle and Spring Co. as sales engineer. He was also assistant engineer for the company at one time.

RENAULT HONORED FOR BUILDING TANKS.

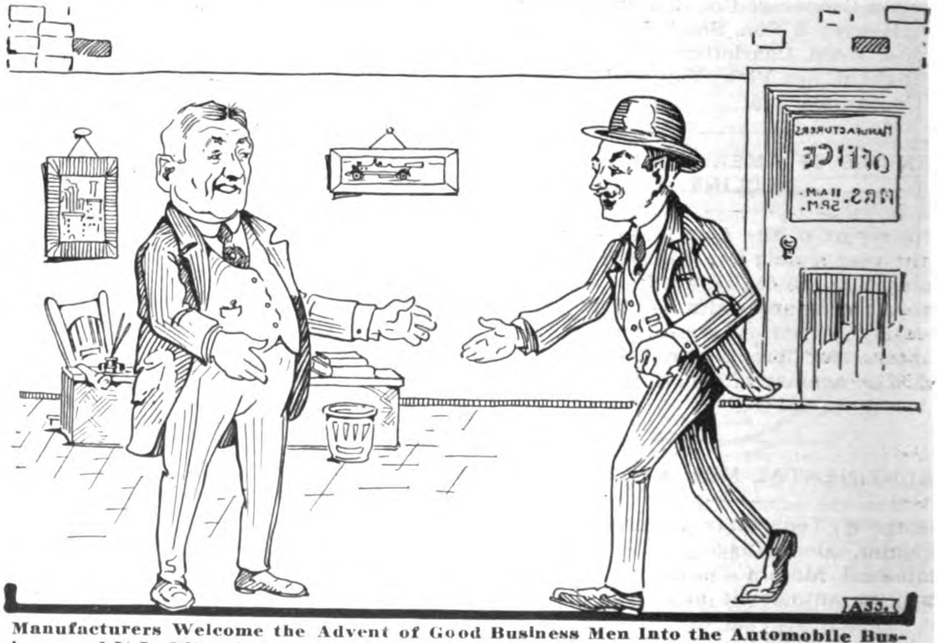
Automobile manufacturers of France tendered Louis Renault a banquet to commemorate his promotion to the rank of officer of the Legion of Honor, which honor was given him because of the part his factory played during the war and particularly for designing and building the Renault light tank. Leading members of the automobile industry attended.

KIRCH CO. REDUCES WORK HOURS.

Working hours have been reduced from 60 to 49 hours a week by the Kirch Manufacturing Co., Sturgis, Mich., and this slogan adopted: "Greater Production in 49 Hours Than in 60 Hours; Greater Prosperity and More Happiness."



The Automobile Dealer Should Know What His Cars Will Do on Every Hill in His City and Vicinity, and Should Be Willing to Show Prospective Buyers What They Can Do.



Manufacturers Welcome the Advent of Good Business Men Into the Automobile Business and It Is Often Advantageous for the New Comer to Visit Some Manufacturers.

(Continued from Page 28.)

Employees should be trained to follow modern business practises. A person entering the sales room should be met near the door by a salesman with a pleasant greeting. In most of the large agencies a salesman has a desk near the entrance.

The telephone is important. It should be promptly answered, and the person answering should begin conversation with some intelligent expression, such as "This is Jones & Co." Inane expressions, such as "hello," "yes," etc., tend to make a poor impression. The person answering should give his entire attention to the telephone, and not continue to carry on a conversation with some one in the room.

If the person calling desires information regarding a car or accessory handled by the agency, he should be given this information by some one thoroughly conversant with the matter. The inquirer should be asked for his name and address. This information may be secured diplomatically. A good way is to say, "If you will kindly give me your name and address I shall be pleased to forward our catalogue to you by the next mail." If the person manifests interest in a car or accessory, invite him to visit the sales room.

Employees Must Be Enthusiastic.

Enthusiasm should be infused in the employee. The nature of the business demands it. When a man does especially good work he should know that it is appreciated.

Salesmen may be employed on a straight salary basis, or may have their earnings depend upon the number of cars they sell. If a commission is paid, it will vary according to the make of the car and where it is sold. Many dealers pay salaries with a bonus for each. Some companies have their salesmen own their demonstration cars, while others furnish them to the salesmen. The man having his money invested in a car usually keeps it in good condition.

Automobile mechanics is an interesting study. By cultivating a hobby for it, rapid advancement in acquiring this knowledge may be made. A dealer should learn the principle and construction of all parts of a car, not only the car he sells, but all other cars, especially those with which he competes.

All engines work on the same principle, but the construction varies. The same is true of the ignition, carburetion and all other components. It is necessary to learn why one manufacturer uses one system, another a different one. From reading the various catalogues, instruction books, advertisements and other printed literature of the manufacturers, this information may be acquired.

Too much technical knowledge might prove a handicap. It is unnecessary to endeavor to learn what only an engineer has to know.

Two general methods are followed by automobile manufacturers. One manufacturer may build every part of his car. Another does little or no manufacturing, but buys the various parts from companies that specialize in their manufacture, and then assembles the components in the factory of the company whose name the car bears.

There are two classes of distributors of automobiles, the wholesaler and the retailer. The former may sell both at wholesale and retail. The wholesaler naturally has a large territory, and he has sub-agents to sell at retail in various cities and towns in his district. The wholesaler may do all the financing for the business, but usually the sub-agent at least owns a demonstration car. In many cases the sub-agent conducts a sales room at his own expense.

Cost System.

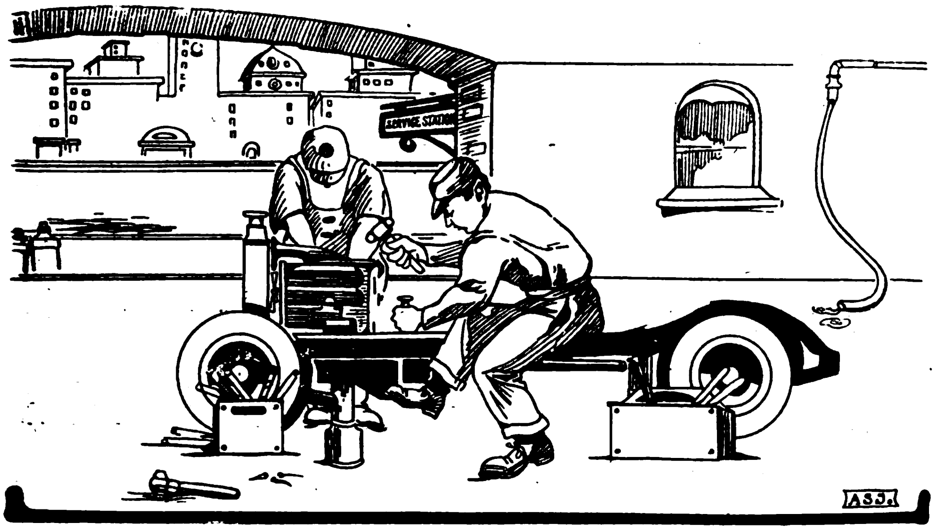
Before launching into business the prospective dealer should decide upon the adoption of a good cost system, especially for the garage and repairing departments. The prime object of a cost system is to determine costs, to analyze and compare them, and to use them as a basis for making prices. A dealer from reliable records is able to make cheaper and more intelligent statements to his bank and obtain a larger line of credit than he could without them.

A system will not run itself; neither will it in itself reduce costs nor increase efficiency. This is strictly up to the dealer himself. A system will give him the information, and, if this information is properly used he will unquestionably find that it is not an item of expense, but a very valuable asset.

While the claim is not made that a cost system will save a man from failure, the fact is that a man who knows where he stands day by day is very much less likely to make a failure than one who is directing his business by guess work.

One of the strongest arguments in favor of installing a practical cost system is the fact that every business man who has installed one and who has operated it for at least a year is firmly convinced that it is a paying proposition.

Proper attention must be given to overhead expense. This is the expense of every kind connected with the business, none of which can be directly located as belonging to a particular job. These expenses, while part of the cost of a job,



It Is Cheaper and Better in the Long Run to Employ Only Expert Mechanics, as They Will Do the Work More Efficiently and Economically Than Poor Mechanics.

are general, so cannot reach the job direct; hence a method must be devised for them to reach the cost sheet in an indirect manner, the method at the same time being so planned that each job will receive its fair proportion of the total.

Overhead Charges.

The first requisite of a business is a place in which to work; consequently the first item of overhead is building expense or rent. If the building is owned by the dealer, the building expenses consist of insurance, taxes, depreciation and repairs, together with such other expenses which are general in their nature, but yet are necessary to render the building useful, such as heat, light, elevator, janitor and water. If the building is rented, the items of insurance, taxes, depreciation and repairs are paid by the owner and in lieu of these is rent. Rent includes a return on the investment in addition to the items named, so when it is desired to make comparisons between plants where the building is owned and where it is rented the return on the investment must be taken into consideration.

Building expense, power, insurance, taxes and depreciation constitute what are generally known as "fixed factory charges," because they are practically fixed, and the factory has nothing to do with either increasing or decreasing them.

Depreciation is a most important overhead expense, because it is generally large. There has probably been more written on this subject than any other item of overhead, but there are so many different ways of handling depreciation that there is really no recognized standard method. It is universally admitted, however, that depreciation does exist, that it is an element of cost just as much as labor or material, and that any system that does not provide for including it is faulty and one that will not give true costs.

A profit and loss statement should be kept, and this should be so arranged as to reflect the actual results of the period, and the figures should not need any explanation or qualification. As all the figures are from the books, the preparation of this statement involves little work and gives valuable information. A statement of assets and liabilities should also be prepared, and the difference between assets and liabilities must be the figures shown on the profit and loss statement as surplus or net profit.

After preparations are made for the opening of an agency judicious advertising in newspapers and possibly other publications should proclaim the new venture. A mailing list of prospects may be compiled by checking tax lists and business and professional directories with lists of persons having automobile licenses.

An Aggressive Advertising Campaign.

Attractive printed announcements on good paper should be mailed to these prospects in the form of an invitation to visit the agency with a view of inspecting the cars and accessories. The invitations may be for the opening day or night, and for any time thereafter.

There should be on hand a good sized stock of literature, describing the cars, to be given to the visitors, many of whom will make excellent prospects.

An advertising campaign should be organized and conducted systematically. Even the window display should fit into it. Special selling arguments should be prepared as a part of the campaign.

Demonstration cars should be kept in perfect condition. If anything goes wrong with a car when a prospect is riding in it, the chance of making the sale will be almost negligible.

A dealer should know exactly what his car will do on any street or hill in his vicinity, and he should be willing to show a prospect what it will do. A dealer should also know just what his competitors' cars will accomplish.

A dealer should never say anything that might be construed as a "knock" upon a competitor or a competitor's car. Selling arguments should be on the strength of his own car, not on the weakness of a competitor's. A dealer should never misrepresent. He makes a mistake who tries to convince a prospect that a car will never need much in the way of repair and that it will run for years without serious depreciation.

The whole business world is built on confidence. If a prospect lacks confidence in you it is up to you to establish yourself and show him that you are entitled to confidence. Apply the golden rule and treat a customer as you would want to be treated if you were in his place.

Only honest salesmen should be employed, and the business should be so conducted that it could not be interrupted by the resignation or removal of any person.

A card index should be kept of prospects, and modern follow-up systems installed. Manufacturers are ready to advise the prospective dealers regarding such systems. The dealer should be progressive at all times. Acquaintance with books on business management, sales management, accounting, etc., will greatly aid him.

The foregoing is the first of a series of articles designed to interest those who desire to conduct an automobile agency. The next article, which will be on "Automobile Salesmanship," will appear in an early issue.

OLFS NOW REPRESENTS STEWART IN MICHIGAN.

A. C. Olfs, formerly eastern representative of the Titanium Bronze Co., has become Michigan representative of the Stewart Manufacturing Corporation, Chicago, maker of die castings. A sales office has been opened at 1509 Kresge building, Detroit.

FORM TWO TIRE FIRMS.

The Erie Tire and Rubber Co., Inc., Manhattan, New York City, has been chartered, with $5000 capitalization by C. A. Waldon, H. S. Hartstein and A. Hirsch of 35 Nassau street, New York City.

The same individuals have chartered the Fair Tire and Rubber Co., Inc., same address, also with $5000 capitalization.

NEW GOTHAM AUTO FIRM.

The Schn Non-Metallic Piston Co., auto business, Manhattan, New York City, has been chartered with $500,000 capitalization by H. C. Fricke, J. Behrmann, C. Ericson, 103 East 90th street.

VICTORY AUTO REPAIR SHOP.

The Victory Automobile Repair Shop, Inc., has been chartered by D. Schloss, E. Janivitch and S. Masters, 1689 First avenue, New York City, with $5000 capitalization.

COMET SERVICE CO. CHARTERED.

A charter has been filed in Delaware for the Comet Service Co. to purchase and handle motor fuel oils, etc., by M. M. Clancy, P. B. Drew and H. E. Knox, Wilmington, Del.

AUTO RAINCOAT FIRM INCREASES.

The Phoenix Auto and Raincoat Co., Manhattan, New York City, has increased its capitalization from $10,000 to $54,000.

NEW BUSINESS CONCERNS, GARAGES AND AGENCIES

The Month's Record of Garages, Agencies, Branches, Service Stations and Repair Shops

FACTORIES, GARAGES AND REPAIR SHOPS.

Montain Home, Ark.; Bayless Brothers have opened a second garage in the Thacker building. They will do repair work and operate a jitney line.

Redwood City, Cal.; W. H. Watson has opened the Park Garage at Main and Cassie streets.

Peoria, Ill.; The New Service Garage has opened at the corner of Sixth and Jefferson streets. W. J. Hollis is manager.

Rochele, Ill.; The Cherry Street Garage has opened for business.

Hartford, Kan.; Harley Allen will open a repair shop.

Hiawatha, Kan.; George Dodson will enlarge his garage building, making a frontage of 75 feet.

Leavenworth, Kan.; The Leavenworth Motor Co. has opened a battery repairing shop.

Phillipsburg, Kan.; Henderson & Wasson are planning to erect a new garage. The building will be modern and one of the finest in western Kansas.

Rexford, Kan.; L. A. Tilden is erecting a garage 24 by 80 feet.

Scandia, Kan.; A. C. Florell has opened a new repair shop.

Solomon, Kan.; A. W. Lee is erecting a new garage.

Sterling, Kan.; D. H. Elstum is erecting a garage.

Winfield, Kan.; Jack Butler has opened a repair and vulcanizing shop.

Albert Lea, Minn.; Hayward Auto Co. is erecting a new garage.

Framington, Minn.; Sprute-Espey Co. is erecting a new garage.

Henriette, Minn.; Alva Crom is erecting a new repair shop.

Moorehead, Minn.; Red River Motor Co. is building a garage.

Tyler, Minn.; Lewis Lange is building a new garage.

Caruthersville, Mo.; T. F. Ford is erecting a two-story garage, 26x104 feet. He will do repairing.

Coffee Creek, Mont.; O. C. Zimmerman & Co. is building a new garage.

Hubbard, Mo ; Luther Owens is building a garage and blacksmith shop.

Miller, Mo.; T. L. Phillips is erecting a new garage building.

Steelville, Mo.; Peetz repair shop has opened for business.

Unionville, Mo.; The Capital Trail Garage is building a large addition to the garage.

Square Butte, Mont.; C. W. Kennedy is erecting a garage. It will be modern throughout.

Twin Bridges, Mont.; The Montana Garage has opened to do repair work and automobile repairing.

Beatrice, Neb.; The Evans Auto Co. has bought the Arthur T. Tart Garage.

Central City, Neb.; Walter Pease and John Martin have opened a repair shop under the name of Pease & Martin.

Brunswick, Neb.; L. C. Hansen has opened a tire vulcanizing and repair shop.

Harington, Neb.; J. J. Miller has opened an automobile repair shop and garage in the Morris building.

Pawnee City, Neb.; C. F. Earhart will open a vulcanizing and tire repair shop. He will carry a full line of accessories.

Silver Creek, Neb.; H. E. Ouderkirk has moved his garage equipment to Havens. He will operate there a modern garage.

Raleigh, N. C ; T. B. Yates & Sons have opened a general repair shop.

Sanford. N. C.; E. B. Buchanan and Ernest McFarland have opened a garage.

Wessington Springs, S. D.; Richard Barber is erecting a new garage.

Jamestown. N. D.; Meeker & Lenton are erecting a new garage.

Finley, N. D.; Lerass Brothers have sold their garage to Paul Christopherson.

New Leipzig, N. D.; Richard Fiedler is building an addition to his garage, 18x26.

Columbus, O.; Howe-Miller Co. have opened a new Ford garage and service station at Main and Third streets. The building is a modern, fireproof, two-story structure, with 24,000 square feet of floor space.

Sabina, O.; Sabina Auto Inn is erecting a garage.

Braman, Okla.; John Orr has commenced work on his new garage.

Frederick, Okla.; J. J. Hollman is having plans made for his garage building. The building will be 100 by 135 feet and will cost $12,000.

Guymon, Okla.; R. R. Heath is successor to H. G. Pratt in the Ford Garage.

Guymon, Okla.; A. D. Hopkins is enlarging his garage building.

Pendleton, Ore.; Hall & Turner have opened a repair shop at 406 East Court street.

Fulton, S. D.; George Burghart is erecting a garage on Bearer road.

Mitchell, S. D.; W. H. Sibey is erecting a new garage.

Lexington, S. C.; Howard Beck is erecting a building for a garage and automobile repair shop.

Cisco, Tex.; D. K. Scott and C. Gray will erect a two-story business house. They recently purchased the vacant lot just south of the Quick Service Garage.

Paris, Tex ; W. B. Wise will erect a garage building to cost $25,000.

Centralia, Wash.; Jacob Rebenstein will erect a modern brick garage building. It will be 75 by 100 feet and located at Tower avenue.

Bonduel, Wis.; Herman Karrow will open a garage.

Delavan, Wis.; O. H. Fiske will open an automobile repair and machine shop on North Second street.

Madison, Wis.; Doring Sales Co. is erecting a new garage, 40 by 120 feet. It will be located at 623 E. Wilson street.

Manitowoc, Wis.; Henry Meisner is erecting a new garage, 45 by 100 feet.

Spring Valley, Wis.; Schneckloth Brothers are building a garage and work shop.

Weyauwega, Wis.; Otto Richter will open a garage.

AGENCIES, DEALERS AND SERVICE STATIONS.

Fort Smith, Ark.; J. W. Blocker and Quaile Bourland have formed a partnership to sell the Chevrolet and Nash automobiles and the Chevrolet trucks. They will soon occupy an attractive sales room on Automobile Row.

Los Angeles, Cal.; Brown & Butler have opened a used car sales establishment at Pico and Hill streets. C. H. Dickison will be manager.

Redlands, Cal.; P. L. Richardson has taken the agency for the Heinze-Springfield electric starter for Fords. He also conducts a Willard service station.

Taft, Cal.; E. E. Eleam has taken the agency for Victor-Springfield tires. He also handles the Chevrolet cars.

Tulare, Cal.; Sol H. Rosenthal has been appointed agent for Dodge Brothers and Chandler cars. A first class sales room and shop will be maintained.

San Francisco. Cal.; The George Campe Motor Co., at 1906 Van Ness avenue, has taken on the Scripps-Booth car.

Pasadena, Cal.; H. R. Slayden Co. has taken the agency for the McNaull tires.

Hartford. Conn.; The E. J. Todd Rubber Co. has taken the agency for the Swinehart solid tire. The company is located at 274 Trumbull street.

Hartford, Conn.; F. W. Williams has been appointed new Paige representative. A sales and service station has been opened at 41-45 Ann street.

New Britain, Conn.; The Cohen Motor Co. has opened for business. The company will distribute the Oldsmobile car.

Twin Falls, Ida.; Harry Bracken will open a machine shop.

Denver, Col.; The Kumpf Motor Car Co. has taken the agency for Pierce-Arrow cars and trucks for the State of Colorado and will be located at 438 South Broadway.

Denver, Col.; The Shock Absorber Service Co. has opened a store at 1544 Court place and will carry repair parts for all shock absorbers.

Pueblo, Col.; The Tyler Tire and Accessory Co. has opened for business at 112 West Seventh street.

Chicago, Ill.; Charles A. Coey will handle the Templar car.

Chicago, Ill.; The Louis Geyler Co., 2500 Michigan avenue, will distribute the Essex car.

Chicago, Ill.; J. P. Nicholson, 1615 Michigan avenue, has taken the agency for the Clydesdale truck.

Danville, Ill.; The Danville Tire and Accessory Co. has opened a store at 17 North Vermillion street. T. D. Neal is president.

Decatur, Ill.; John Richardson has opened a tire and motor car accessory store at 243 East Eldorado street.

Jacksonville, Ill.; Jacksonville Auto Exchange Co. has been organized and has opened for business at 213 South Sandy street. A used car and accessory business will be conducted.

Freeport, Ill.; Scheffner & Otto have taken on the distribution of the International motor truck. They are implement dealers.

Springfield, Ill.; The Goodrich Rubber Co.'s branch has reopened. Benton Thompson is manager.

Davenport, Ia.; Don Sales Co. will open a sales room at 407 West Third street. The company distributes Reo and Chandler automobiles and G. M. C. trucks.

Arkansas City, Kan.; The Arkansas City and Motor Supply Co. will soon open for business. The proprietors of the new concern are G. C. Moody, manager, and S. A. Ransom.

Kinsley, Kan.; The Lemon Tire Service has opened for business at the corner of Santa Fe Trail and Main street.

Ottawa, Kan.; Alonzo Russel and Son have opened a tire soling at 117 East Second street.

Topeka, Kan.; Duncan Tire and Rubber Co. has opened for business. J. L. Duncan is manager.

Wichita, Kan.; The Watkins Motor Co., 211-213 West Douglas avenue, has leased the Morgan building. The company is in the repair, paint and top making business.

Northampton, Mass.; Henry Suprenant has opened an automobile paint and decorating business on North Main street.

Springfield, Mass.; The O. L. Hutting Co. has been appointed Franklin dealer for Hampden, Hampshire and Franklin counties in Massachusetts and Windham county in Vermont.

Minneapolis, Minn.; The Automobile Owners' Tire Corporation, at 711 13th street, south, has opened a branch office. The main office is in St. Paul.

St. Paul, Minn.; M. K. Wiedemann has opened a new automobile business and will market the Oldsmobile in the former Escher Motor Co. at 208 West Fifth street.

Wabasha, Minn.; A. M. Stiever has secured the agency for the Ford car. He is the proprietor of the Pioneer Garage.

Gallatin, Mo.; Charles Martin will open a sales room for the distribution of the Buick.

St. Louis, Mo.; The Hirsch-Altheimer Tire Co. has opened at 3304 Lindell street to sell the Auburn tires.

St. Louis, Mo.; The St. Louis Exide Battery branch has established a station with the Giant Co., 7551 Manchester avenue, Maplewood.

St. Louis, Mo.; The Velie Automobile Co. will open a sales room and repair shop at the southeast corner of Garrison avenue and Olive street. The structure is a two-story brick building, containing 22,000 square feet of space.

St. Louis, Mo.; The West End Tire and Rubber Co. has opened at 617 North Kings highway to sell tires, accessories and to do retreading by the Dri-Kure process.

Benson, Neb.; C. C. Williams and W. J. Powers have formed a partnership to do repairing of radiators and tires. The plant is located at 5914 Military avenue.

Lincoln, Neb.; The Western Rubber Supply Co. have opened sales rooms at 1611 O street. R. V. Quick is in charge.

Plainview, Neb.; F. J. and Henry Wedman will open a storage battery service and will handle the agency for the Nash actomobile. They have purchased the W G. Smith building.

York, Neb.; J. R. McGowan has installed new equipment for the handling of his business. He is proprietor of the Guarantee Tire and Repair shop.

Streeter, N. D.; G.G. Enzminger and J. Witmayer have opened for business and they are prepared to do all kinds of automobile repairing.

Brooklyn, N. Y.; The Mulford Haas Corporation, Inc., has become listributor for the National car.

Cleveland, O.; The Ohio Auto Sales Co., 5810 Euclid avenue, has taken the agency for the Maxwell anl Chalmers passenger cars and the Maxwell truck in northeastern Ohio.

Dayton, O.; Robert R. Rix has opened an electrical repair shop and a Hupmobile service station.

Cherokee, Okla.; The Stone Garage is adding new equipment and supplies. The company deals in gas, oils, accessories, Ford and Maxwell parts.

Oklahoma City, Okla.; The Guarantee Battery Co. has formed to operate a repairing and recharging station and to distribute the Ever Ready battery. It is located at 909 Broadway.

Tulsa, Okla.; E. W. Bance will open a shop for automobile trimmings, automobile tops and seat covers.

Astoria, Ore.; E. P. Steele has secured a sales agency for Willard batteries.

Pendleton, Ore.; The Pendleton Cycle Co. has installed a vulcanizing plant and will distribute Savage tires.

Portland, Ore.; The Northwest Oakland will distribute the Clydesdale truck in Oregon and Washington.

Portland, Ore.; Lewis E. Obye Motors Co. has taken the agency for the Acason truck for the State of Oregon.

Portland, Ore.; Oregon Motor Car Co. has leased the entire Wemme building. The company will retain its old location at Park and Davis streets to be used as a truck sales room and service and parts department for the Winther, Panhard and Kleiber trucks.

Providence, R. I.; The Edwards Motor Car Co. has been opened for business by Oliver D. Edwards at 35-37 Aborn street.

Dallas, Tex.; William Morriss, Inc., will handle Hudson automobiles. The president of the concern is William Morriss.

El Paso, Tex.; The Southern Border Motor Co. has been organized to distribute the Republic truck.

Henrietta, Tex.; John Ansley has opened a battery station for lighting, starting, ignition and the repair of storage batteries. He will also operate a Willard service station.

Fort Worth, Tex.; Harris-Jennings Co. has taken on the Peerless car. They also handle the Hupmobile car.

Chehalis, Wash.; The Harry B. Quick Auto Co. will handle Samson tractors and G. M. C. trucks.

Chehalis, Wash.; Rosenstein's Garage will handle Standard and Winther trucks and La Crosse tractors.

Colfax, Wash.; The Dimick Tire Shop has opened for business at Island and Main streets.

Dalton, Wash.; Albert E. Neal has opened an Overland service station.

Everett, Wash.; John Erland and Al Pouring are proprietors of the Ever Ready battery shop at 2912 Rucker avenue.

Kelso, Wash.; F. P. Jones has added the has secured the agency for I. H. C. tractors.

Kelso, Wash.; F. P. Jones has added the Buick car to his line. He has also the agency for the Ford and the Dodge Brothers cars.

Olympia, Wash.; The Olympia Garage Co., Inc., has secured the agencies for the G. M. C. truck and Samson tractor.

Seattle, Wash.; Alex Hanna will open an Exide sales and service station at 82 Marion street. He has the distribution for King county of Exide storage batteries.

South Bend, Wash.; Isaac Pepper has secured the agency for the Studebaker and has added a complete line of accessories.

Raymond, Wash.; Rocky's Garage on Second avenue has added an accessory department.

Tacoma, Wash.; F. T. Carleton has opened for business under the name of the Tacoma Tire Co. at 739-741 Broadway. Firestone tires will be distributed in the Pierce county.

Tacoma, Wash.; The Merrill Motor Co. has opened an Oakland sales room at 1211 A street. J. G. Merrill and C. H. Beck are in partnership.

Yakima, Wash.; The C. & S. Tire Co. have opened a tire store and vulcanizing plant at 8 West Yakima avenue. They will distribute Star tires. M. B. Crane and H. B. Stone are the proprietors.

Yakima, Wash.; W. A. Henri and E. B. Armitage have opened the I. X. L. tire shop.

Milwaukee, Wis.; The Coerper Motor Co., 631 Brand avenue, will distribute the E. W. truck unit in addition to the Dearborn and Smith Form-A-Truck.

Milwaukee, Wis.; The John Hennes Co., 89 Biddle street, has been appointed state distributor of the Gramm-Bernstein truck.

Ripon, Wis.; A. M. Harger has been appointed a district distributor of the Nash line in central Wisconsin. A wholesale office and service station will be established at Fond du Lac, Wis. The retail business will still be continued.

NEW CONCERNS RECENTLY INCORPORATED

Monthly Record of New Business Houses for which Charters Have Been Issued in the Various States and Classified According To Nature of Business.

NEWLY ORGANIZED MANUFACTURERS OF CARS, TRUCKS AND TRACTORS.

Dover, Del.; Sumon Tractor Corporation; $1,000,000; M. L. Horty, M. A. Denver, J. D. Frock.

Wilmington, Del.; Auto Components, Inc.; $153,000; to manufacture and sell automobiles and automobile supplies.

Wilmington, Del.; Inter-City Truck Service Corporation; $250,000; to manufacture and sell motor trucks and all kinds of motors; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Chicago, Ill.; Bradden Motor Co.; $200,000; to manufacture and sell motor vehicles; F. J. Clarke, S. M. Fogle, George J. Fogle.

Richmond, Ind.; Lorraine Car Co.; $100,000; Delbert H. Cummings, Charles O. Snyder, Anna M. Cummings.

Biddeford, Me.; Gove Motor Co.; $150,000; to manufacture motor vehicles, motors, engines, airplanes and machinery.

Omaha, Neb.; Hoffman Brothers Motor Co.; $1,000,000; to manufacture automobiles; William L. Hoggmann, Ralph S. Wiltnent, Verne G. Cawley.

Tenafly, N. J.; Lange Auto Co.; $50,000; to manufacture and deal in motor trucks; F. C. Barton, Francis Lange, C. H. W. Lubs.

New York, N. Y.; Pablo Homs, Inc.; $100,000; to deal in automobiles and tractors; P. Homs, P. J. Bernard, C. T. Howell.

Troy, N. Y.; The Duplex Tractor Co.; $750,000; to manufacture farm tractors, motors, engines and machinery; H. R. Mosely, L. A. Robinson, W. Pratt..

North Baltimore, O.; North Baltimore Tractor and Machine Co.; $30,000; M. F. Leathers, Frank Jossett, L. Rhoad, D. B. Bushey, Grant Mays.

Bucyrus, O; Ohio Happy Farmer Tractor Co.; $20,000.

PARTS AND FITTINGS MAKERS.

Dover, Del.; The Bradford Wrench Co.; $600,000; to manufacture machinery and tools; Victor Gardner, John S. Tripp, Adam Rener, Charles J. Henderson.

Dover, Del.; Munroe Engine Co.; $200,000; M. M. Lucey, J. J. Kennedy, Ferris Giles.

Dover, Del.; Petz Motor Co.; $20.000; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Wilmington, Del.; Forrest Co., Inc.; $50,000; to manufacture gasoline saving devices.

Chicago, Ill.; Auto Parts Co. of America; August H. Skoglund, Henry W. Binnie, Carl S. Carlson.

Augusta, Me.; Ibex Carburetor and Manufacturing Co.; $200,000; to manufacture and deal in carburetors, automobile and aircraft appliances.

East Orange, N. J.; Roller Bearing Manufacturing Co.; $2,000,000; H. M. Picking, C. O. Geyer, S. L. Gedney, Jr.

Jersey City, N. J.; Alloy Welding Products Co.; $10,000; Joseph J. Hughes, Charles A. McCune, Thomas G. Gallagher.

Jersey City, N. J.; Automotive Products Co.; $600,000; to manufacture screw machine products and special machine tools.

Trenton, N. J.; W. G. Runkles Machinery Co.; $125,000; Charles T. Clarke, Charles C. Klockner.

Fulton, N. Y.; Ontario Equipment Corporation; $10,000; to deal in engines, boilers, machinery and tools; W. J. Hartnett, G. M. Fanning, G. C. Hodgson.

New York, N. Y.; American Yarman Association; $10,000; to deal in tools and machinery; H. A. St. George, W. M. G. Watson, J. H. Claffy.

New York, N. Y.; Lafayette Truck Corporation; $25,000; to deal in motors, engines and machinery; G. W. Harris, H. L. Klein, M. L. Volt.

Syracuse, N. Y.; The Planer Guard Co.; $50,000; to deal in devices and safeguarding machinery; O. Royal, W. S. Lyon, C. E. Allen.

Mandan, N. D.; Farm Motor Sales Co.; $50,000; Mattais Grewer, Michael Tischida, Glen Ullin, William Maas, F. W. Maas.

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Stamford, Conn.; H. S. Helander Auto Supply Co.; $25,000.

Dover, Del.; Billings Gasoline Co.; $2,250,000; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Dover, Del.; Graham Tire and Rubber Co.; $50,000; Frederick Graham, H. L. Graham, L. D. Graham.

Dover, Del.; International Overman Tire Corporation; $150,000; S. B. Howard, A. W. Britton, P. S. Smith.

Dover, Del.; The Standard Wire Spring Co.; $200,000; Charles D. Alle, L. B. Phillips.

Wilmington, Del.; Economotive Co.; $110,000; to manufacture automobile tire air pressure gauges.

Chicago, Ill.; The Armstrong Tire and Vulcanizing Co.; $20,000; Max Kleinman, Cora Aaron, Rose Azzato.

Chicago, Ill.; Southwest Tire Co.; $3000; Francis V. Healy, H. M. Johnson, M. C. Kennicott.

Louisville, Ky.; Schardein Motor Co.; $2000; to handle Ford motor and accessories; William E. Attix, George W. Schardein and Mrs. George Schardein.

Boston, Mass.; Cortland Tire Co.; $10,000; Frank C. Hardman, Fred W. Phillip, A. Smith.

Chelsea, Mass.; American Retreading Corporation; $25,000; to deal in automobile tires; Isaac Gerber, Samuel Gordon, Jacob Goose, Max Leitman, Samuel Harris.

Newark, N. J.; The Standley Non-Skid Chain Co.; $25,000; to purchase and sell Standley adjustable traction chains.

Trenton, N. J.; Aeronite Tire and Rubber Co.; $125,000; Irving Eisenberg, Evelyn T. Adam, Arthur T. Vanderbilt.

New York, N. Y.; Autopack Machine Corporation; $8000; to deal in metals and castings; D. H. Ross, E. R. E. Senbaum, J. J. Millin.

New York, N. Y.; Bray-Pierson Co.; $10,000; to deal in foundry and machine shop supplies; J. T. Albeles, W. A. Werner, Rubber Co., Inc.; $20,000; H. B. Carpenter, W. T. Riley.

New York, N. Y.; Carpenter Tire and H. F. Rudiger, M. F. Hennessy.

New York, N. Y.; Dickson Sales Corporation; $10,000; to distribute automobile supplies; Edward Flander.

New York, N. Y.; Equity Engineering Co.; $5000; F. W. James, J. H. McLaughlin, E. B. Ashby.

New York, N. Y.; Johnson Graphite Lubricator Corporation; $25,000; W. B. Darling, H. W. Buker, F. A. Buker.

New York, N. Y.; McMaull Tire Co.; $10,000; Marcus Franklin, Louis H. Plisoldt, Clarence L. Mitchell.

New York, N. Y.; Machine Sales Co.; $10,000; to manufacture machine tools and accessories; W. H. Tuohey, G. F. Woolston, B. Manilla.

New York, N. Y.; Sherman Square Auto Supply Corporation; $7500; J. McGinnis, T. A. Garvey, J. S. Williams.

Syracuse, N. Y.; Arrow Point Auto Supply Co., Inc.; $25,000; to manufacture automobile supplies; G. E. Scherrer, C. M. Blackman, J. M. Griswold.

Oklahoma City, Okla.; The National Auto Supply Co.; $25,000; S. D. Rodgers, J. T. Michael, L. E. Mock.

Philadelphia, Pa.; McMaull Tire Co.; $18,000.

Columbia, S. C.; Fowlers' Battery Service, Inc.; $2000; to do a general business of buying and selling batteries and other automobile accessories; Wade J. Fowler, C. T. Graydon.

Memphis, Tenn.; D. K. R. Tire Co.; $2100; to conduct an automobile tire business; Julius Flattau, Sam Flattau, George Effers, Louis Morris, D. Beerman.

Walla Walla, Wash.; Central Tire Shop Corporation; $5000; E. Epstein, M. D. Crook.

Milwaukee, Wis.; Quality Tire and Rubber Co.; $5000; M. E. Newald, Sidney Schwenger, A. M. Newald.

GARAGES AND REPAIR SHOPS.

Carlinville, Ill.; The Carlinville Motor and Implement Co.; $15,000; to do a general motor, implement sales, repair and garage business; R. W. Borman, Frank C. Borman, Alexander M. Crawford.

Newark, N. J.; Jitney Garage and Repair Co.; $25,000; to deal in automobiles; Frank Blanchard, Hettie K. Blanchard, C. Willard Wands.

Passaic, N. J.; Fifth Street Garage; $25,000; to conduct an automobile and garage business.

Brooklyn, N. Y.; Halsey Garage Co.; $7500; to conduct a garage business; L. Valentine, M. Danzigen, W. B. Taylor.

Brooklyn, N. Y.; Sixth Avenue Garage; $5000; A. Hochstadt, B. Pacth, L. Greenberg.

Brooklyn, N. Y.; The Troy Avenue Garage of Brooklyn; $15,000; Isidor Pincus, Ida Deitchman, Julius Deitchman.

New York, N. Y.; Jackson Square Garage Co.; $10,000; A. J. Halpin, L. Bass, S.

New York, N. Y.; Upton Garage, Inc.; $5000; S. Abramson, E. Lang, H. J. Lang.

Ossining, N. Y.; H. J. Washburn; $10,000; to conduct an automobile service station; H. C. Gerlach, R. M. Tenny, H. J. Washburn.

Syracuse, N. Y.; Battery Service Co.; $22,000; C. A. Hills, W. M. Wischrath.

Syracuse, N. Y.; Syracuse Garage, Inc.; $50,000; to conduct a garage business; E. E. Roberts, W. A. Schuyler, A. J. Roberts.

Yonkers, N. Y.; Delmar Garage, Inc.; $75,000; J. J. Carley, E. D. Sullivan, W. H. Palmer.

Dallas, Tex.; Howard Burr Tire Co.; $5000; J. W. Moore, F. M. Butt, H. S. Burr.

Montpelier, Vt.; Central Motor Car Co., Inc.; $5000; to conduct a garage business; Harry L. Soper, Leroy E. Picard, E. Grace Soper, Ella E. Picard.

Seattle, Wash.; Independent Garage; $1000; George Olson, W. De Jarlais.

DEALERS IN AUTOMOBILES, MOTOR TRUCKS AND TRACTORS.

Tuscaloosa, Ala.; Lumbermen's Motor Truck Co., Inc.; $25,000; to deal in automobiles and to operate a garage.

Bridgeport, Conn.; The New England Auto Wrecking Co., Inc.; $15,000; Nathan Roberts, Isadore Manasevit, Solomon Manasevit.

Waterbury, Conn.; The P. B. Co.; $50,000; to conduct an automobile business.

Dover, Del.; Cynchem Co.; $100,000; M. L. Horty, J. D. Frock, M. A. Denver.

Dover, Del.; J. B. Crokett Co.; $3000; to export automobiles; C. L. Rimlinger, M. M. Clancy, P. B. Drew.

Dover, Del.; Delaware Trucking and Rigging Co.; $20,000; Phillip L. Garrett, Alexander Jamison, J. Walter Jackson.

Dover, Del.; Hoffman Brothers Motor Co.; $1,000,000; William L. Hoffman, Ralph S. Wiltenet, erne G. Cawley.

Dover, Del.; The National Electric Welding Co.; $50,000; William W. Jones, Frank Wampler, Charles J. Murphy.

Dover, Del.; Pinkerton Motor Co.; $20,000; F. R. Hansell, E. M. MacFarland, J. Vernon Pimm.

Dover, Del.; Pittsburgh & Fairmont Transportation Co.; $50,000; George F. Baum, W. J. Leader, Charles J. Henderson.

Dover, Del.; Undertakers' Cooperative Auto Service Co.; $200,000; F. R. Hansell, E. M. MacFarland, J. Vernon Pimm.

Newman, Ga.; H. C. Glover Automobile and Machinery Co.; $15,000; to buy and sell automobiles, bicycles, trucks and tractors; H. C. Glover, O. F. Nixon, C. H. Hamrick.

Quitman, Ga.; Economy Motor Co.; $10,000; to buy and sell automobiles; W. C. Burns, R. N. Burns, Georgia Burns.

Chicago, Ill.; Central Auto Service; $1000; H. L. Cacender, Frank T. Milchrist, William E. Kaiser.

Decatur, Ill.; Auto Wrecking Co.; $10,000; to wreck and junk automobiles; K. Lanterman, A. C. Stafford, H. A. Stafford.

Anderson, Ind.; B. P. Manufacturing Co.; $50,000; to deal in automobiles; J. Y. McKethan, Arthur Berger, Frank E. Kinble, Frank C. Corson, George O. Pound.

Evansville, Ind.; Single Center Buggy Co.; $15,000; to deal in automobiles and tractors; Willis M. Copland, Fred H. Hock, George T. Davis.

Marion, Ind.; Van Cleave Auto Exchange; $10,000; to buy and sell automobiles; George W. Van Cleave, John W. Calender, R. T. Calender.

Louisville, Ky.; Klein Motor Co.; $25,000; Ben S. Klein, Louis Klein, H. H. Roberts, Harry J. Klein.

Salina, Kan.; Salina Tractor Co.; $80,000; to sell tractors, tractor parts and accessories.

Boston, Mass.; Baker Electrical Co., Inc.; $5000; Julius Baker, Charles S. Boraks, Edith Caufield.

Boston, Mass.; Hall Motor Co.; $25,000; to deal in automobiles; Sherwood Hall, Jr., Wheaton Kittredge, William L. F. Gilman.

Boston, Mass.; Motors Finance Co.; $100,000; to deal in automobiles; William A. Bunton, Catherine T. Maloney, James E. O'Connell.

Detroit, Mich.; The Broadway Taxicab and Transfer Co.; $1000; Vincent M. Brennan, Roy A. Coughlin, Paul H. Brennan.

St. Paul, Minn.; The General Auto Sales Co.; $50,000; to deal in automobiles; John Coates, Frank M. Tolf, R. A. Briggs.

Atlantic City, N. J.; Aero Transport Co.; $200,000; to conduct a general transportation business.

Jersey City, N. J.; The Universal Bus Co.; $90,000; to operate jitneys, motor buses and automobiles.

Newark, N. J.; Earle & Parcells, Inc.; $25,000; to deal in vehicles of all kinds; F. H. Earle, M. P. Earle, W. W. Parcells.

Newark, N. J.; Goodwin Automobile Co.; $50,000; H. H. Goodwin, James H. Goodwin.

Newark, N. J.; Intercity Trucking Co.; $50,000; Arthur M. Dietrich, Arthur Dietrich, Jr., Lester P. Carstens.

Newark, N. J.; The William McCullough Co.; $125,000; to conduct a trucking business; William H. Duerr, Jr., J. Carrie W. McCullough.

Passaic, N. J.; Interstate Bridge Forge and Manufacturing Co.; $25,000; John A. Rubin, Abram Apple, Dora Apple.

Paterson, N. J.; Antoine Bus Co.; $2000; to operate a bus line; Ernest Antoine, Elsie Antoine, William Scheren.

Trenton, N. J.; Early & Parcellis, Inc.; $25,000; F. H. Earle, M. P. Parcellis.

Albany, N. Y.; Nathan Marks Co.; $5000; to conduct a general motor vehicle business; W. Arnstein, A. Marx, N. Marx.

Albany, N. Y.; The Sterling Motor Freight Corporation; $50,000; J. Vanost, H. A. Van Ostenbrugge, J. C. Watson.

Brooklyn, N. Y.; Farrel & Hartye, Inc.; $5000; to conduct a trucking business; P. A. Hartye, M. E. Hartye, J. Farrell.

Brooklyn, N. Y.; J. Koslin, Inc.; $5000; to conduct a taxicab business; F. G. N. Depaola, E. M. Jarvis, J. Koslin.

New York, N. Y.; Belbar Auto Corporation; $25,000; N. Barudin, S. Barudin, J. Barudin.

New York, N. Y.; Bregman Taxicab Corporation; $10,000; H. Bregman, H. M. Knoff.

New York, N. Y.; Dempsey-Galvin Electric Corporation; $20,000; M. W. Volt, J. A. Dempsey, E. F. Glavin.

New York, N. Y.; Durant Engineering Corporation; $20,000; I. Herberman, J. T. Smith, E. H. Kelly.

New York, N. Y.; Friedwald-Brown Trucking Co.; $5000; M. J. Friedwald, Stansky A. Brown.

New York, N. Y.; P. J. McCormack, Inc.; $10,000; to conduct an automobile and garage business; G. P. Lumsden, S. J. Quinn, D. J. McCormack.

New York, N. Y.; Sargent Stores, Inc.; $10,000; to conduct a garage forwarding and trucking business; T. R. Lewis, D. J. Sargent, E. R. Baker.

New York, N. Y.; Tillman Electro Plating Works, Inc.; $25,000; J. Tillmann, E. M. Tillmann, E. Tillmann.

New York, N. Y.; Ulster Foundry Corporation; $100,000; J. A. Warrie, A. A. Hebert, E. H. Mays.

New York, N. Y.; Oldsmar Tractor Co.; $100,000; W. F. O'Keefe, George C. Steigler, H. J. Dowdell.

Rochester, N. Y.; A. W. Sergeant Co., Inc.; $25,000; to buy and sell tractors and trucks; A. W. Sergeant, Jessie E. Sergeant, L. E. Munson.

Utica, N. Y.; Licking Truck Co.; $10,000; Earl W. McCann, Charles Shader, Herbert L. McCann, W. Harry McCann, Harold W. McCann.

Watertown, N. Y.; Harmon Machine Corporation; $50,000; A. H. Lefevre, G. W. Tripp, C. W. Folts.

Dayton, O.; Economical Vulcanizing Co.; $100,000; George W. Rickard, Lloyd J. Newbauer, John E. Bumgardner, Anvil E. Ritchie, Max E. Skinner.

RECORD OF BUILDING OPERATIONS FOR FEBRUARY

Contracts Made and Plans Contemplated for Alterations or Erection of Garages, Repair Shops, Service Stations and New Plants.

CONTEMPLATED PLANS AND SPECIFICATIONS.

Blytheville, Ark.; R. M. Breen; one-story garage, 50x100.

Ansonia, Conn.; Ansonia Garage Co., 403 Main street; one and two-story garage, 100x200; $50,000.

Hartford, Conn.; Frank Finklestein, 11 Central Row; one-story public garage, 68x110; $20,000.

Hartford, Conn.; Frederick C. Walz, 248 Trumbull street; four-story public garage, 90x140; $60,000.

Waterbury, Conn.; Oscar Le Crois; two-story garage and storage station, 20x40; $5000.

Washington, D. C.; A. B. Mullett & Co., Union Trust building; five-story garage, 60x125; $100,000.

Jacksonville, Fla.; Armour & Co.; one-story garage; $4350.

Chicago, Ill.; S. Klapka, 1451 Carmen street; one-story private garage, 18x32.

Chicago, Ill.; Michael Karas, care David S. Klafter, 64 W. Randolph street; one-story garage; $16,000.

Chicago, Ill.; Standard Oil Co., 910 S. Michigan avenue; one-story oil storage and distributing station, 75x121; $15,000.

Greenville, Ill.; J. M. Cummings; one-story public garage; $25,000.

Mt. Vernon, Ill.; Standard Oil Co., 900 S. Michigan avenue, Chicago; one-story filling station; $6000.

Terre Haute, Ind.; Dr. T. W. Moorhead, care Showrds-McCormick Co., 511 Tribune building; two-story public garage, 80x160.

Tipton, Ia.; Tipton Hardware Co.; one-story garage, 50x136; $12,000.

Ashland, Ky.; J. H. McCleary; one-story garage, 50x100.

Louisville, Ky.; Standard Oil Co.; one-story garage at 426 W. Bloom street; $11,000.

Shreveport, La.; Davis-Brown Oil Co.; one-story filling station at Texas and Louisiana streets; $10,000.

Aberdeen, Md.; William Silver; one-story garage, 15x22; $1500.

Baltimore, Md.; Luigi Di Stefano, 368 N. Gay street; one-story garage, 35x75; $15,000.

Baltimore, Md.; J. C. Spedden, 2715 Harlem street; one-story garage, 44x82; $10,000.

Frederick, Md.; Kepner & Smith, 34 N. Market street; one-story garage; $5000.

Hagerstown, Md.; Samuel and Clude Hartlen; one-story garage; $25,000.

Boston, Mass.; William London; one-story garage, 50x80; $50,000.

Boston, Mass.; John Carcano, 19 Barry street; one-story group garage, 40x44; $2500.

Boston, Mass.; Electric Garage Trustees, 39 Boylston street; two-story public garage, 23x90; $150,000.

Boston, Mass.; Rowe Construction Co., Chestnut Hill avenue, Brighton, Mass.; one-story public garage, 64x97; $15,000.

Cambridge, Mass.; Thomas Campbell; one-story garage at 80 Vine street, 55x56; $4000.

Somerville, Mass.; Ethel M. Hopkins, 11 Lester terrace; one-story garage; $2480.

Waltham, Mass.; William M. Caldwell; one-story garage at 563 Main street; $14,000.

Detroit, Mich.; Peter A. Basile, 1586 Crane avenue; one-story garage, 60x80; $7000.

Kansas City, Mo.; J. W. McKainey, 604 Victor building; one-story garage, 79x135; $30,000.

Jersey City, N. J.; Bergen Storage Warehouse Co., 313-15 Bergen avenue; one-story garage, 50x100; $10,000.

Lodi, N. J.; A. Saltenstein; one-story garage, 28x65; $4000.

Newark, N. J.; Clinton L. Mundy, 722 Frelinghuysen avenue; one-story private garage; $4000.

Newark, N. J.; Mrs. Rosie Gold; one-story garage at 244 Livingston street; $2000.

Newark, N. J.; W. D. Kilpatrick; one-story garage at 2479-90 Amsterdam avenue; $25,000.

Newark, N. J.; Michael Mattheis, 41 Richard street; nine individual garages; $2500.

New Brunswick, N. J.; C. Vacea; one-story public garage, 48x100.

Paterson, N. J.; P. J. Mahoney, 388 Grand street; one-story public garage, 25x100; $7000.

Paterson, N. J.; Louis Cramer, 99 Ward street; one-story garage, 32x100; $9000.

Paterson, N. J.; Jacob Uslauer, 468 Main street; one-story public garage; $6000.

Trenton, N. J.; John A. Roebling Sons Co., 612 S. Broad street; one-story garage, 38x100; $5000.

Albany, N. Y.; J. A. La Porte; one-story garage, 20x24; $3000.

Batavia, N. Y.; Andren J. Ruhland, 1 Wiard street; one-story public garage, 20x90; $15,000.

Brooklyn, N. Y.; M. Raedman, 218 Osborne street; one-story garage, 20x34; $1000.

Brooklyn, N. Y.; Helen Freed, 207 Gates avenue; one-story garage, 12x42; $12,000.

Brooklyn, N. Y.; Andrew C. McKenzie, 1123 Broadway, New York; one-story garage, 21x22; $2000.

Brokolyn, N. Y.; Michel Birganti, 175 Bay 17th street; one-story garage, 24x40; $2000.

Brooklyn, N. Y.; Pincus Glickman, 1422 Pitkin avenue; eight story garages, 10x18 each; $5000.

Brooklyn, N. Y.; Mrs. Hilda Nelson, 6907 19th avenue; one-story garage; $1200.

Brooklyn, N. Y.; E. G. McMahan, 833 St. John Place; one-story garage; $1000.

Brooklyn, N. Y.; Angelo Potusella, 602-6 Lorimer street; one-story garage; $10,000.

Brooklyn, N. Y.; C. Steckel, 1052 60th street; one-story garage, 16x18; $3000.

Brooklyn, N. Y.; Michael Nofeletti, 1755 Cropsey avenue; one-story garage, 14x45; $4500.

Brooklyn, N. Y.; Meyer Mozer, 1835 18th street; one-story concrete block garage, 20x20; $1000.

Brooklyn, N. Y.; Hymann Wesler; one-story garage, 25x26; $2000.

Brooklyn, N. Y.; Ascutney Realty Co., 721 Avenue J; one-story garage, 18x21; $1000.

Brooklyn, N. Y.; J. O. Greenschpoon, 433 Miller avenue; one-story garage, 18x20; $1000.

Brooklyn, N. Y.; Thomas McNamara, 238 78th street; one-story garage, 20x42; $1000.

Brooklyn, N. Y.; Herman Mexler, 1101 Myrtle avenue; one-story garage; $1500.

Brooklyn, N. Y.; Michael E. Finnegan, 44 Court street; one-story garage, 50x200

Brooklyn, N. Y.; E. T. Epstein, 335 Warren street; one-story garage, 20x30; $1500.

Brooklyn, N. Y.; Estate D. S. Arnott, 810 Carroll street; one-story garage, 60x110; $12,000; Lessee, James Shewan & Son; foot of 27th street.

Elmira, N. Y.; Armour & Co., 208 S. La Salle street, Chicago; one-story garage, 26x36; $5000.

Long Island, L. I., N. Y.; George Brown & Co., 1039 Boulevard; one-story garage; $1000.

New York, N. Y.; John Coakley; one-story garage, 50x100; $72,000.

New York, N. Y.; Theodore Demmerle, 1510 Bryant avenue; two-story brick and terra cotta garage, 79x87 and 77x94.

New York, N. Y.; Catherine Muller, Rockaway Park; four-story garage, 100x200; $100,000.

Harrisburg, Pa.; William M. Hargont, 222 Market street; two-story garage; $5000.

Niffin, Pa.; Juniata Motor Car Co., care A. Nestor of Juniata Hosiery Mill Co.; one and two-story public garage, 40x80; $10,000.

Philadelphia, Pa.; J. E. Fieldstein, 1828 Chestnut street; one-story public garage, 42x25x79.

Philadelphia, Pa.; B. Statinsky, 16 Nandian street; one-story garage, 27x44; $8000.

Reading, Pa.; Harry Smith, Pottstown, Pa.; one and two-story public garage, 35x272; $50,000.

Reading, Pa.; George and Charles Eisenbrown, 300 N. Sixth street; two-story public garage, 40x136; $10,000.

Webster, Pa.; H. C. Gallatin, Monessen, Pa.; one-story filling station, 12x18; $1200.

Providence, R. I.; Michael F. Norton; one-story public garage; $25,000.

Providence, R. I.; Abraham White, 157 Sumter street; one-story garage and shop; $10,000.

Lewisville, Tex.; Highway Garage; one-story garage; $10,000.

Sulphur Springs, Tex.; Hopkins Motor Co.; one-story garage, 59x137; $14,000.

Tacoma, Wash.; Highway Overland Garage; one-story garage, 50x120; $7000.

Fredericksburg, Va.; A. T. Embrey; one-story garage, 23x28.

Norfolk, Va.; W. C. Jackson; one-story garage; $2000.

Huntington, W. Va.; John B. Stevenson, 1661 Fifth avenue; two-story garage and sales room, 60x160; $25,000.

Waukesha, Wis.; Durkey & Durkey; one-story garage, 65x132.

CONTRACTS AWARDED.

Wilmington, Del.; Southern Hall and Garage Co., Delaware avenue and Clayton street; one-story garage, 20x102; $2000.

Aurora, Ill.; Bomberger Bros., 71 N. View street; one-story garage, 22x30; $1000.

Chicago Heights, Ill.; A. J. Johnson; one-story private garage, 22x24; for G. A. Wilson, 188 Chicago road; $1500.

Baltimore, Md.; J. J. Walsh & Sons, 1518 Maryland avenue; one-story garage, 40x100, for Fleishman Yeast Co., 1413 N. Charles street; $10,000.

Baltimore, Md.; P. J. Cushen, 220 St. Paul street; two-story public garage, 32x50, for William Sireal Son, Calvert and Federal streets; $4000.

Mt. Airy, Md.; Hahm & Betson, 30 Wimmer street, Frederick, Md.; one-story garage, 39x100, for E. E. Butler, Mt. Airy, Md.; $10,000.

Highland Park, Mich.; W. L. Brown, 2588 Second avenue; one-story garage, 50x60; $4000.

Minneapolis, Minn.; Dr. Hugh Tunstead, 1126 Metropolitan Bank building; one-story private garage, 14x23.

St. Louis, Mo.; W. F. Sawyer, 2514 Granby street; one-story garage, for F. M. Sutton, 208 West 36th street; $2500.

St. Louis, Mo.; B. O. Williams, 13th street and Debroe avenue; one-story garage for Crawford Nottingham; $2500.

St. Louis, Mo.; G. F. Wilkinson, Arcade building; one-story garage, for Taylor & McLean; $2300.

St. Louis, Mo.; Charles Wilcox, 49 W. Union street; one-story gasoline filling station, 21x40, for F. S. Buenger, 8415 Church road; $3500.

Jersey City, N. J.; National Corporation of New Jersey, 622 Bergen avenue; one-story public garage, 20x113; $12,000.

Cleveland, O.; J. H. Chaney, 563 Hippodrome annex; one-story garage, 32x80, for Kuhlman Car Co., Adams avenue and L. S. and M. S. railroad; $3000.

Personal News of the Industry in Brief.

D. G. Caywood has joined the sales force of the Black & Decker Manufacturing Co., Baltimore, Md., in the capacity of special representative to carry on the field work in the distribution of the Black & Decker specialized products. For the last 15 years Mr. Caywood has been actively engaged in this field. He was formerly sales manager of the Brunner Manufacturing Co., Utica, N. Y.

D. G. Caywood, Special Representative for Black and Decker Manufacturing Co.

B. F. Wulff, formerly sales manager for the Century-Plainfield Tire Co., has been appointed general sales manager for the International India Rubber Corporation, South Bend, Ind.

Thomas L. Moore is now southwestern district manager for the General Tire Rubber Co., Akron, O. He will be located at Dallas, Tex.

C. P. Brewer has returned to the United States after having spent nine months as a Y. M. C. A. secretary in England, France and Italy. He will make an extensive tour through the Detroit and Indianapolis factories. Mr. Brewer is associated with the Brewer Motor Car Co., Spokane, Wash.

Major Howard Blood, a member of the Blood Brothers Machine Co. of Allegan, Mich., has been transferred from Dayton to Detroit, and is now connected with the finance division. He was formerly executive officer of the Aeroplane Engineering Division.

C. L. Holt is now manager of the tire and accessory department for William L. Tedford, distributor of Federal tires for Arkansas. He was formerly auditor for the Kansas Democrat, Little Rock, Ark.

L. M. Baker has become associated as special sales engineer for the Hyatt Roller Bearing Co., Detroit. He has been sales manager of the United Motors Service, Inc., and previous to that western sales manager for the Standard Steel Spring Co., Detroit.

H. T. Melhuish will take charge of the office in Philadelphia of the Fulton Motor Truck Co., Farmingdale, L. I. He will have charge of advertising. Mr. Melhuish succeeds M. R. Sanborne, who goes to the Kansas City office.

Fred E. Dean is now western manager of the Alied Metal Sales Corporation, New York. His headquarters will be in the Dime Bank building, Detroit.

J. B. Siegfried has been appointed sales manager and assistant general manager of the Auto Wheel Co., Lansing, Mich. He was formerly general manager of the King Motor Car Co., Detroit.

Lieut. W. H. Harley has become assistant manager of the Motor Truck Sales Co., Arkansas distributor for G. M. C. trucks and trailers, Indiana trucks and Fruehauf trailers. He has been connected in the United States air service.

J. E. Murph has joined the Fulton Co., Milwaukee, as traveling representative for 11 southeastern states. He was formerly manager of the tire and accessories department for William L. Tedford, Arkansas distributor for Federal tires.

Gilbert U. Radoye is now advertising and assistant sales manager of the Haynes Automobile Co., Kokomo, Ind. He was formerly affiliated with the advertising division of the Hudson Motor Car Co., the Packard Motor Car Co. and with the Nordyke & Marmon Co.

Glen T. Purdy has become assistant purchasing agent of the King Motor Car Co., Detroit. He has just returned from active service.

Joseph P. Ripley has been promoted to central district manager of the Fisk Rubber Co., Chicopee Falls, Mass. The central district is one of the largest in the sales organization of the Fisk company, including 20 direct branches. His headquarters will be in Chicago. Mr. Ripley succeeds Claude Platt, who has been appointed special representative.

Joseph P. Ripley, Central District Manager Fisk Rubber Co.

Claude Platt has been promoted to special representative of the Fisk Rubber Co. of the central district, which includes Illinois, Indiana, Wisconsin, Iowa and a part of Kentucky. His new duties will take him among the manufacturers of the country handling special and contract sales in pneumatics and solids. Mr. Platt has been identified with the rubber business since its earliest days, having been with the India Rubber Co. His headquarters will be at the offices of the Chicago main branch, 2508 South Michigan boulevard.

Claude Platt, Special Representative for Fisk Rubber Co.

C. B. Caruthers has become associated with the Denby Motor Truck Co., Detroit, as district manager for Indiana and Kentucky. He has been connected with the industry for several years, having been engineer of the Hupp-Yates Co. and experimental engineer for John Lansden. Of late years he has been associated with the Canadian branch in the selling end.

K. K. Hoagg is now engineer in the sales department of the Hyatt Roller Bearing Co., Detroit.

Arlington Bomunk has joined the service department of the Cook Auto Co., Little Rock, Chevrolet dealers. For several years he was connected with the Chevrolet factory.

Homer Blocker has been promoted to the position of advertising manager of the Republic Rubber Corporation. For the last two years he has been assistant to the advertising manager.

Lieut. Ezra W. Clark, who has been discharged from the air service, has become advertising manager for the Clark Equipment Co., Buchanan, Mich.

Major N. B. Morgan is now chief engineer of the Cleveland Tractor Co., Cleveland. For 14 years he has been engaged in automobile engineering. In June, 1917, he was appointed assistant to the chief of the Ordnance Department of the Army.

E. G. Liepold, who has been secretary to Henry Ford for many years, will continue in that capacity and will be hereafter located at the Dearborn plant, where he will become a supervisor at the tractor plant.

J. R. George, who was formerly connected with the F. S. Carr Co., Boston, makers of automobile fabrics, has become assistant sales manager of the Barley Motor Car Co., Kalamazoo, Mich.

D. F. Edwards has resumed his work at the plant of the Pressed Steel Co. of Lansing, Mich. He is treasurer of the company. Mr. Edwards held the rank of major in the purchasing and supply division at Washington.

J. J. Sullivan has assumed the duties of manager of the used car department of the Reo Motor Car Co. of New York, Inc., in Brooklyn. He was formerly connected with the Studebaker Corporation of America in New York.

R. Martinez Fernandez has entered business for himself as tire representative. He was formerly connected with the Carrisle Cord Tire Co., New York and central district manager.

F. R. Strunk is now works manager and treasurer of the Coleman Tractor Corporation. He was formerly president of the Kansas City Foundry Co.

Horace Slingluff, Jr., has joined the sales force of the United Auto Sales Co., Studebaker and Garford distributors, Baltimore. He was the first manager of the Mid-City Garage, Baltimore.

Justin R. Weddell, Cleveland, O., has taken the position of E. S. Babcock, who has resigned as advertising manager of the Firestone Tire Co., Akron, O. Mr. Weddell comes from the Corday & Cross Co., where he is present sales manager.

L. A. Sommer has resigned as factory manager of the Allen Motor Co., Fostoria, O., to become head of the Sommer-Adams Co. of Cleveland. This company has just been incorporated to manufacture special jigs, tools and fixtures, concentrating on automobile and parts work.

W. B. Jewell is now manager of sales for the Sweeten-Wilmington Co., Wilmington, Del., agents for the Franklin. Mr. Jewell was formerly with the Foss-Hughes Co. and later with the Ordnance Department of the Bethlehem Loading Co. at New Castle, Del.

E. Ketchum has joined the Reinhard Motor Co., Oakland and Jordan distributors, Baltimore.

Major Lewis P. Kalb has joined the engineering staff of the Standard Parts Co. as assistant to J. G. Utz, director of engineering. He was formerly in the engineering division of the Motor Transport Corps. Before entering the service Major Kalb was chief engineer of the Kelly-Springfield Motor Truck Co. and previous to that was assistant truck engineer of the Pierce-Arrow.

William Tully Norton, Jr., has been appointed chief engineer for the Russel Motor Axle Co., Detroit, Mich. He was formerly in charge of the executive branch, engineering division, Motor Transport Corps. Previous to entering the service he was experimental engineer for the Selden Motor Vehicle Co., Rochester, N. Y.

Charles M. Jessup has assumed the duties of assistant to O. F. Conklin, president of the Remy Electric Co., Detroit, Mich. He was for the last four years director of the commercial interests of the motor equipment division of the company. In his new duties he will have full supervision of sales of the motor equipment division.

H. L. Browne is now factory representative for the Acme Motor Truck Co. in Colorado, Wyoming, New Mexico and Utah. For several years he was with the Service Motor Car Co. J. E. Bowles will be transferred to the Pacific coast. For the last year he has been a special representative in the middle western states. His headquarters will be at San Francisco, Cal. George P. Gould is to be factory representative in Massachusetts, Maine, New Hampshire and Vermont.

Ray A. Long is back with the Columbia Motors Co., Detroit, Mich., as chief engineer. When the United States entered the war Mr. Long entered government service and was appointed one of the staff of engineers to develop the Militor four-wheel drive truck.

Sam V. Ward has been appointed manager of the truck department of the Kardell Motor Car Co., St. Louis, Mo.

Dan Hyland has taken the agency for the Stewart-Warner Speedometer Corporation in St. Louis and will conduct it as the official service station.

Fred R. Bump has resigned as manager of the New York branch and the eastern district for the Studebaker Corporation to join the Cleveland Tractor Co. His headquarters will be at 1790 Broadway, New York City. For over four years Mr. Bump has been with the Studebaker concern.

C. O. Dail is now special representative for the Stewart-Warner Speedometer Corporation, Chicago. He will have his headquarters at Cleveland, covering a large part of the territory adjacent to the Forest City. He was formerly with the Splitdorf Electrical Co., Newark, N. J.

Ira C. Jones has been appointed general manager of the Studebaker branch in New York City, succeeding Fred R. Bump, who has resigned. Associated with Mr. Jones as retail sales manager is Frank Scholes. The headquarters will be at Broad and 56th street.

Lieut. J. Bertram Howell has returned from artillery service, U. S. Army, and is now in the sales department of the Bound Brook Oil-Less Bearing Co., Bound Brook, N. J.

Paul Hale Bruske has rejoined the staff of the Power, Alexander & Jenkins Co., Detroit, advertising agency. Mr. Bruske wrote the successful advertising for James Cousins. Among other accounts in the agency he will have charge of the advertising for the Harroun Motor Corporation.

C. D. Studebaker has assumed the duties of district manager for the Firestone Tire and Rubber Co.'s branch, New York City. F. P. Jones, formerly manager of the Newark branch, succeeds Mr. Studebaker in the management of the New York office.

Merle MacFarland, for a number of years in the parts business, is now with the sales department of the Truflex Safety Glass Corporation, New York, manufacturers of non-breakable glass.

O. L. Travis, for several years identified in tire selling, has been appointed sales manager of the Owen Tire and Rubber Co., Bedford, O., manufacturers of truck tires. Mr. Travis has traveled the entire country in this work, developing a wide acquaintance with dealers.

Glen L. Orr has resigned as purchasing agent of the Briscoe Motor Corporation, Jackson, Mich., and has become secretary of the M. H. Herrmann interests, Detroit.

Joseph Hubner has been elected president of the Pan-American Rubber Co., Milwaukee, Wis., at the annual meeting of the stockholders. Other officers elected include the following: Charles Christian, treasurer, and P. H. Preston, secretary. A dividend of seven per cent. has been declared on the preferred stock.

G. B. Rickenbaugh has been elected vice president of the Scott Corporation, Aeolian hall, New York City. The company deals extensively in automobile accessories in both domestic and foreign fields. It has general offices in Paris and London. Mr. Rickenbaugh has been identified with prominent banking interests in Pennsylvania.

P. G. Greene has resigned from the Motor Car Equipment Co. of Boston to become associate manager of the Automobile Equipment Department of the more-Savage Co., Boston, Mass.

L. P. Prossen has become associated with the Nilson-Miller Co. of Hoboken, N. J. He has been elected vice president and will be in charge of the gear cutting and piston ring departments. Mr. Prossen was formerly mechanical superintendent of the Black & White Taxicab Co., New York City.

S. Ash has been appointed business manager of the L. V. Flechter & Co., New York carburetor manufacturers. He will have charge of the factory offices. For the past year Mr. Asch has been acting as assistant to the secretary.

Benton G. L. Dodge has resigned as advertising manager of the McNaull Tire Co., Toledo, O. Prior to entering the McNaull organization Mr. Dodge was for a long time associated with the Standard Parts Co. in advertising work.

N. G. Rost, general sales manager of the Deusenberg Motors Corporation, has returned from Europe. He was there on a visit in the interests of the company. The company is located at the old quarters, 120 Broadway, New York City.

W. T. Horton, Jr., who was formerly in charge of the executive branch of the engineering division, Motor Transport Corps, has been appointed chief engineer of the Russel Motor Axle Co., North Detroit.

C. A. Watson has assumed the position of sales manager of the Four-Drive Tractor Co., Big Rapids, Mich. Mr. Watson was formerly a distributor of the Studebaker car.

AMERICAN MANUFACTURING AND SUPPLY CO. IN NEW PLANT.

The American Manufacturing and Supply Co., Boston, manufacturer of auto accessories, including "Varnola," "Varnola Soaps" and "Smilo," has purchased and equipped a new plant at 9 Wilton street, in that city. The company's business had so developed that larger manufacturing facilities became a necessity. A laboratory has been installed, with a graduate chemist in charge.

F. G. Watrous, Treasurer and General Manager American Manufacturing and Supply Co., Boston, Mass.

E. J. Hall is president and sales manager, and F. G. Watrous is treasurer and general manager. The company has exclusively manufactured high class products, which have the confidence of the automobile trade.

The corporation would appreciate any suggestions mailed to it relative to the needs of the automobile trade which might be met by chemical research in its laboratories, as the desire is to continue to serve the public as it has in the past by supplying products which the public will always want, once it has used them.

E. J. Hall, President and Sales Manager American Manufacturing and Supply Co., Boston, Mass.

The utmost service to the automobile trade has always been the policy of the company. With a chemical laboratory the concern can work out formulas as a basis for manufacture of products of the highest efficiency at a minimum cost. Just pride is taken in the fact that the strength of the company's business is repeat orders, which multiply in every market where its products have been introduced.

"Varnola," one of the company's chemical products, is an automobile body cleaner and finish. It makes an old car look like new and keeps a new car from looking old.

"Varnola Soap" is for cleaning off all scum, etc., from automobiles. It does its work thoroughly and without deteriorating the finest finish.

"Smilo" is a chemical product which purifies by the removal of foreign matters and makes hard water soft by the elimination of calcareous and mineral substances. It is of great value as a rapid cleanser for garage floors, etc.

N. A. D. A. LAUNCHES CAMPAIGN FOR NEW MEMBERS.

The National Automobile Dealers' Association has launched a campaign for 10,000 members by 1920. There are now 4500. Permanent association headquarters is located at 3124 Locust street, Motor Row, St. Louis, Mo. Three field secretaries will be started on association work. A new handsome N. A. D. A. membership sign has been authorized. A legal department will be established at headquarters, and copies of laws, proposed bills, etc., will be compiled and mailed back to members. By-laws have been changed to admit without charge as associate members all secretaries of local and state organizations. Every section of the country is now represented on the board of directors.

TO MAKE AUTO HEATERS.

The Automobile Heater and Specialty Co., to manufacture, sell and deal in and with heaters, ventilators, etc., has filed a charter in New Jersey, with $100,000 capitalization. The parties are Herbert E. Latter, P. B. Drew and C. L. Rimlinger, Wilmington.

NEWARK TIRE FIRM CHARTERS.

A charter has been filed in New Jersey for the Essex County Tire Co., Newark, N. J., to deal in auto tires, etc., with $50,000 capitalization, by Solomon Weisinger, Max Schlechter and Morris Schwartz, all of Newark.

BODY COMPANY CHANGES NAME.

The Delivery Auto Truck and Body Co., Inc., Manhattan, New York City, has changed its name to the Standard Commercial Body Corporation.

JURY ACQUITS AUTO ACCESSORY JOBBERS.

Twenty-one individuals, members of the Automotive Equipment Association, formerly the National Association of Automobile Accessory Jobbers, and 16 corporations, which were connected with the National association, were found not guilty of violating the Sherman anti-trust law by a jury in the United States District Court in New York City. The usual charges of seeking to restrain trade by fixing prices and limiting output were made.

The jury deliberated two hours before finding the defendants not guilty of conspiring to restrain trade or monopolize it. After the verdict the defendants, who were in court, shook hands with the jurors.

Judge Learned Hand, in charging the jury, touched on most of the operative resolutions of the association, and said that of themselves they were not restraint of trade, and that they meant little unless there was some ulterior intent proven.

The defense used only three witnesses, ex-Presidents Sidney F. Beech, T. M. Brooks and Charles E. Feath. Each of them explained the association's trade work. The defense contended that it was not a price fixing organization and had no monopolistic intentions.

Syndicate catalog men, purchasing agencies and others who have had differences with the association's members, testified for the government.

The indictment was found Aug. 30, 1917. Since then the association has suffered, prospective members hesitating to join, not knowing what the status of the organization would be. Indications now are that the association will go forward into a successful future. Realizing that some of its motives have been misconstrued, the association proposes to clearly define its ideals with the object of continuing trade betterment work.

The Leader, the official organization of the association, states:

"Now that the principles of our association have been vindicated, it behooves every member to put his shoulder to the wheel and do something worth while to make this the greatest trade association in the annals of business organizations.

"Every member should preach the gospel of progress and better merchandising to his own organization with a 'never say die' spirit, to uphold and further the prestige of our association.

"A great deal can and must be done in a constructive way, and it will be a great satisfaction to all if, at the Hot Springs convention, reports from all our members would bear out that not only in times of stress, such as the association has passed through, they are going to stand squarely behind it, but also that in the period of readjustment they are equal to the task of making that not only the greatest, but also the best association—let's go."

The Gasoline Engine Equipment Co., Manhattan, New York City, has increased its capital from $15,000 to $50,000.

PENNSYLVANIA RUBBER CO.'S ANNUAL MEETING.

Stockholders of the Pennsylvania Rubber Co., Jeannette, Pa., at the annual meeting declared a quarterly dividend of 1¾ per cent. on preferred stock and 1½ per cent. on the common stock.

Directors were elected as follows: Herbert DuPuy, H. Wilfred DuPuy, Charles M. DuPuy, Seneca G. Lewis, George W. Shiveley.

Officers were elected as follows: Herbert DuPuy, chairman; H. Wilfred DuPuy, president-treasurer; Charles M. DuPuy, vice president; Seneca G. Lewis, vice president-general manager; George W. Baum, second vice president in charge of production; A. H. Price, second vice president in charge of sales development; George W. Shiveley, secretary; C. G. Morrill, assistant treasurer; H. H. Salmon, purchasing agent; James Q. Goudie, general sales director.

Executive committee: H. Wilfred DuPuy, Charles M. DuPuy, Seneca G. Lewis, George W. Shiveley, George W. Daum, C. G. Morrill, H. H. Salmon, A. H. Price.

Lieut. George Blair, formerly manager of the Philadelphia branch, but for the past 18 months in the naval aviation service, has resumed the management of that branch.

P. F. Armitage, who for the last year has been second machinist's mate in the naval revenue force, has resumed work in the northeastern Pennsylvania territory, with headquarters at the Philadelphia branch.

Milton H. Batz, for eight years a representative of the company, but for eight months in army service, has been discharged a first sergeant and is now in western New York state.

William E. Littell, for six months in the instruction division, is back with the company as representative in central Pennsylvania.

GARAGE CHARTER FILED.

A charter has been filed in Delaware for the Ninth Avenue Garage, Inc., to own and operate a garage, with $25,000 capitalization. The incorporators are George Baehr, Hannah I. Baehr, Corapolis, Pa.; George Baehr and William Baehr, McKeesport, Pa.

EDISON NEW YORK OFFICE MOVED.

The New York sales office of the Edison Storage Battery Co. has been moved from 209 West 76th street to 247-251 West 35th street. The new quarters are larger and better equipped.

CHANGES NAME.

The Glassman Auto Corporation, Manhattan, New York City, has changed its name to the Glassman-Bartha Welding Corporation.

GARAGE SALES CO.

Cowen's Garage Sales Co., Mechanicville, N. Y., has been chartered with $10,000 capitalization by J. M. Purcell, R. J. and E. S. Cowen, Mechanicville.

Trade Associations and Their Value to Members.

What is membership in an automobile trade association worth?

In some cities the annual fee is small, in others it is costly.

Sudden interest in this question was aroused in Indianapolis, Ind., when the Indianapolis Automobile Trade Associattion boosted its fee from $12 to $50 a year.

This was such a sharp increase that many of the automobile dealers began to wonder just what their membership was actually worth to them. A few inquired if $50 wasn't a rather large sum for dues.

"No, it's not," was the answer from the association's officers, who pointed out what associations in some other cities charge.

Kansas City has a membership fee of $250 and annual dues of $50. Philadelphia charges $500 for membership and $25 per annum. In Des Moines the membership fee is $50 and the dues $40. St. Louis has a membership fee of $100 and $25 dues. Seattle charges $50 for membership and dues of $30 a year. In Omaha the initiation fee is $250 and dues $24. Syracuse has an entrance tax of $300 and $50 dues. Detroit charges $300 membership fee and $150 dues.

Indianapolis has dues only, there being no membership fee.

"The Dealer," an interesting publication of the Indianapolis organization, thus outlines what the association gives a member in return for his dues:

"Members who attend the meetings of the association know its benefits. These meetings are a clearing house for trade ideas. And when business men get together to talk over their mutual interests they are naturally going to be ahead dollars.

"The office of the I. A. T. A. is kept busy getting information for the membership. Newspapers, tourists, tradesmen and innumerable others are daily given directions in reaching members and the places of business of our association.

"The committees of this association are constantly active in securing legislation for the interests and the protection of all motorists. And in working for the interests of motorists we are helping the automobile business and kindred industries.

"Each year this association sponsors two automotive shows, exhibitions that have become famous throughout the country and which attract the attention of all persons interested in the industry.

"This association has been an effective in all war work and has been a liberal subscriber to meet the country's financial needs. We placed 101 students in the shops of our membership for practical training in automotive work that they might be of service to the government in the war.

"Our association succeeded in having abolished a proposal to license non-resident trucks entering and departing from Indianapolis. This license threatened our inter-city traffic. This achievement alone means much to the automotive interest of Indianapolis and Indiana. We also have the promise of Mayor Jewett that he will oppose increasing the license fees on city trucks.

"The used car report issued semimonthly by the office of this association is in itself a thing of great value to our members. We have published six issues of this report and have had many commendatory things said about it. While it is not as exhaustive as some reports it gets at the meat of the business and enables our members to get quick and accurate information.

"Almost daily this office is called upon to make confidential inquiries into subjects that are of interest to our members. This office also serves in other capacities in the matter of securing valuable information.

"The scope of our work can be pointed to in an instance like this: A member complained of the bad condition of the street at Capitol avenue and Vermont street. Investigation disclosed a very dangerous hole. This office kept after the street commissioner until that hole was repaired.

"Between Dec. 7 and Feb. 12 this office sent out 1331 pieces of mail, all pertaining to the automotive business.

"This office has been called into 29 different meetings and conferences that have to do with the civic life of the community.

"During various war drives that have taken place since the establishment of this office we have sent cars to 598 meetings, thus assisting the public committees in carrying on their important work.

"This association has donated $1000 to the Hoosier Motor Club and the Hoosier State Automobile Association for the furtherance of the good roads movement. This money was for stationery, printing and traveling expenses.

"The association did its bit by buying $5000 worth of Liberty bonds.

"The above facts only partially reveal the activities of the Indianapolis Automobile Trade Association."

TO DEAL IN CARS AND MOTORS.

Scanlan & McGirr, Inc., Manhattan, New York City, has been chartered with $10,000 capitalization, to deal in motors, engines, cars and boats, by T. F. McGirr, J. M. and I. A. Scanlan, 235 Fort Washington avenue, New York.

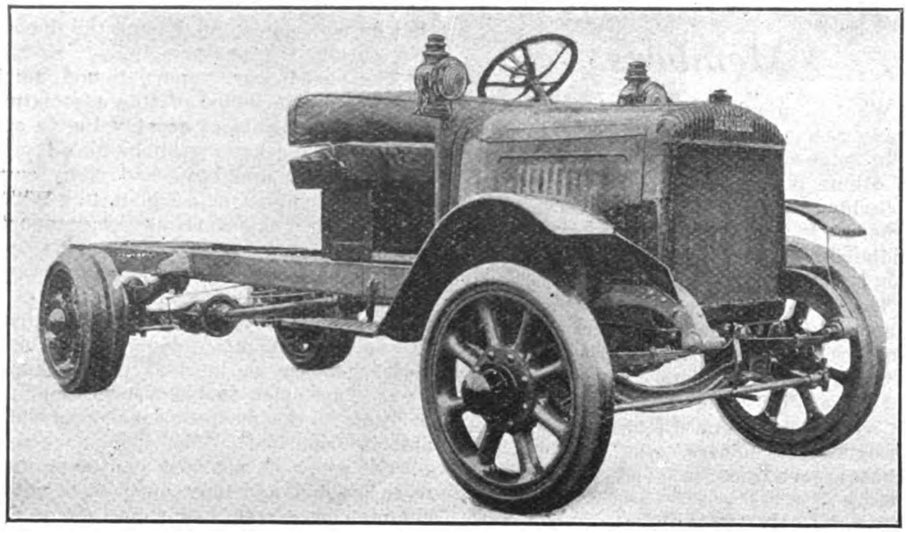
TO HANDLE AUTO ACCESSORIES.

The Security Robe Rail Corporation, Manhattan, New York City, has been chartered with $25,000 capitalization, to deal in auto accessories, by A. I. Eichorn, N. M. Goldberg and M. Heim, 600 West 157th street, New York.

GARAGE INCORPORATED.

McVittie & Tisdale Garage, Inc., Niagara Falls, N. Y., has been chartered with $25,000 capitalization by P. F. Weeks, M. L. Tisdale and W. McVittie, Niagara Falls.

TWO NEW REPUBLIC TRUCK MODELS



Model 20, Known as the "Yellow Chassis Dreadnaught," Having a Rated Load Capacity of 3½ Tons and Built for Heavy Duty.

DECIDED progression is evidenced in the two new models of Republic trucks recently designed and now being produced commercially by the Republic Motor Truck Co., Alma, Mich., which are regarded as being the most thoroughly perfect units yet built by this concern. Statement is made that they represent the advance in power truck design made during the war, and that the qualities will be evident upon even casual inspection. The model 19 is also known as the "Yellow Chassis Invincible," and has a rated load capacity of 2½ tons. It is intended that this shall meet the requirements of large numbers of business men who have need of units of moderate capacity. The model 20, also known as the "Yellow Chassis Dreadnaught," has a rated load capacity of 3½ tons and is claimed to be a "moderately light weight truck" that is constructed for heavy duty.

The designs have been developed with much care and statement is made that the machines have been very carefully balanced with reference to proportions of units and parts, so that there is ample strength and yet no excess weight. The standard wheelbase of model 19 is 144 inches and of model 20 165 inches, with an option for the latter of 185 inches at additional cost.

Continental "Red Seal" Engines.

The engines for both chassis are the Continental Red Seal, which have been specially developed for power, economy and reliability. The engine for the smaller chassis is a four-cylinder, water cooled unit, with cylinder bore of 4⅛ inches and stroke of 5¼ inches, which is rated by the S. A. E. formula at 28.90 horsepower, and that for the larger chassis is a similar type with cylinder bore of 4½ inches and stroke of 5½ inches, rated by the same formula at 32.40 horsepower. The cylinders are L head type and are cast in pairs. The crank case is cast in two sections, the upper half carrying the main bearings and the lower section is the base of the crank chamber and the oil reservoir, with extensions that house the timing gearset and the flywheel. The crankshaft is a special alloy steel drop forging, having three journals, that is heat treated and ground to dimensions.

The engines are lubricated by internally contained circulating systems that are known as the splash pressure type. The lubricant is drawn from a screened well in the reservoir by a gear pump and is forced through two main supply pipes, the one in the upper section of the crank case and the other in the lower half, the former supplying the three main bearings and the timing gearset, and the oil distributed by the splash of the connecting rods in the oil troughs in the crank chamber lubricating the cylinder and piston walls, the wristpins, camshaft bearings, the cams and valve tappets.

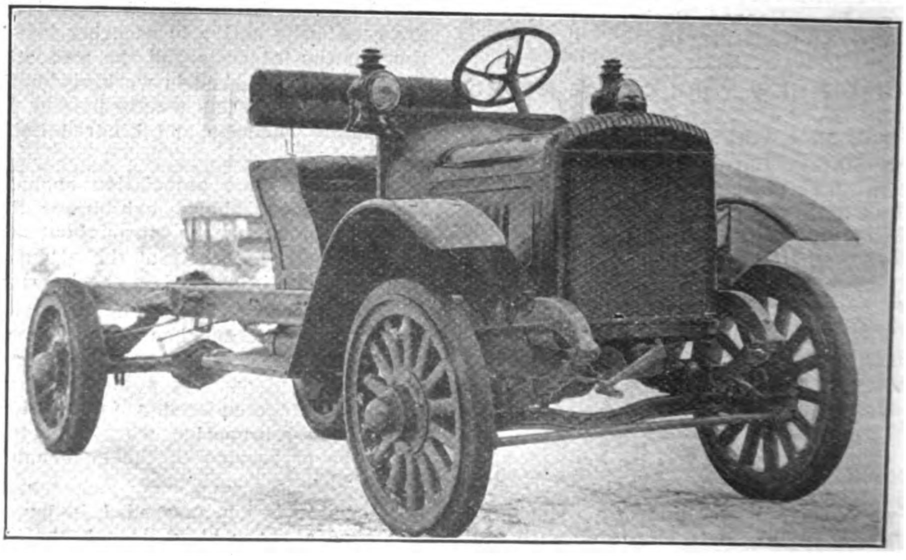
Other Details of the Engines.

The engines are cooled by circulations of water forced through the cylinder jackets by centrifugal pumps and large radiators of the exclusive Republic armored type. The radiators are large, that of the smaller chassis having 450 square inches of frontal surface, and that of the larger 600 square inches. The cores are built to have strength that will endure vibration and road shock stresses, and are removable in the event of damage. The engines are governed by governors driven by helical gears from the camshaft and these can be sealed so they cannot be changed by the drivers without the knowledge of the owners or others directing the uses of the machines. The ignition is by high-tension magnetos, with variable spark operated by hand levers on the steering wheels, and the fuel is supplied through float feed carburetors of improved types that are maintained to be extremely efficient.

The clutches, which are a multiple dry disc type, that is said to be very easy of engagement, and the transmission gearsets, are assembled with the engines, and the unit power plants are suspended at three points, this obviating all stresses from chassis distortion. The gearsets are selective sliding gear types, having four forward speed ratios and reverse, this construction having been proven to afford greater utility and to insure certainty of operation where traction is poor or the grades extremely steep. The lowest forward ratio is especially useful for starting heavy loads and the highest ratio affords an economical direct drive for use in favorable conditions.

The Power Transmission System.

The power transmission system consists of a two-section main shaft, the sections being tapered at either end, with three universal joints, there being a supporting self-aligning bearing mounted on a frame cross member. As in all Republic trucks the rear axles are Torbensen internal gear units, the load being carried by an I section member on which is mounted the completely housed jackshaft, the pinions on the ends of the driving shafts meshing with the internal ring gears secured to the rear wheels, which are enclosed and require lubrication at infrequent intervals. These axles are claimed to apply 92 per cent. of the engine power direct to the rear wheels



Model 19, Known as the "Yellow Chassis Invincible," Which Has a Rated Load Capacity of 2½ Tons and Built for General Utility.

and to afford very high efficiency where the work is heavy.

The frames are heavy pressed steel channel section, with strong cross members, well reinforced and gusseted, and these are mounted on semi-elliptic springs. No radius rods are used, the drive being through the rear springs, which also absorb the torque and braking stresses. The steering gears are heavy and are located at the left sides, and the control is by the usual foot pedals for the clutches and the service brakes. The gear shifting and the emergency brake levers are at the centers of the footboards and the ignition and fuel supply levers are on the hand wheels.

The service brake is an external contracting type of new design that is stated to be very efficient, and the emergency brake is an internal expanding type. Both brakes operate on the rear wheels. Another feature is a foot accelerator with a foot plate. Much care has been taken to obtain effective lubrication and oil cups have been installed and grease cups discarded wherever practicable. Oilless bearings are used for the brake shafts, this insuring against possible neglect. Endurance has been insured by the use of highest grade materials throughout. Even the tool kit has been improved by the addition of front and rear axle wrenches that fit the spring clip nuts.

The chassis are sold with the usual equipment and may be fitted with either solid, pneumatic or cord tires, as the buyer desires.

JAXON PLANT REBUILT AND IN OPERATION.

A large unit of the Jaxon Steel Products Co., in Jackson, Mich., which was burned about a year ago, has been rebuilt and is again in operation. The Jaxon company became a subsidiary of General Motors Jan. 1. Up to that time it was a part of the United Motors Corporation, which has been merged with the General Motors Corporation. During the war considerable government work was done at the Jaxon plant, principally the manufacture of rims and heavy artillery tires. More than 600 workers were on the payroll, but only a few women, as they could not handle the heavy materials and parts.

LAURAINE MAGNETO MOVING TO LONG ISLAND CITY.

The Lauraine Magneto Co., now manufacturing by contract at Menominee, Mich., will soon move its headquarters to Long Island City, N. Y., where it has taken 50,000 feet of factory space. Michael Feldine, the president, predicts that the company will make 50,000 magnetos this year.

MEXICO EXTENDS EXEMPTION.

Consul General Chamberlain at Mexico City has announced that a presidential decree extends indefinitely the exemption from Mexican import duties for motor trucks and all other vehicles.

REFRIGERATOR TRUCKS FOR MEAT HANDLING.

An equipment that is stated to be the first of the kind ever constructed in America, and which was found in use to be in every way practical, is a refrigerator body for a six-ton Packard chassis, owned by the Sullivan Packing Co., Detroit. The company's plant had for years made distribution to its branches by railroad, there being direct service with all of them, but when the railroad congestion became acute and 60 or more hours was the time for moving a car from Detroit to Toledo, O., the company decided it would experiment with highway transportation.

A Packard six-ton chassis was bought and on this was installed a body very much like those of standard refrigerator cars. The walls and the heavy side doors were made of aluminum, wood and cork, which was especially efficient for insulating the interior, with tanks for ice and brine that were filled from outside.

The truck was found to be in every way serviceable and with it the 60-mile haul between the Detroit plant and Toledo was covered in approximately six hours, this reducing the shrinkage to a minimum that could not be equalled with railroad cars, and besides making faster time there was the door to door delivery and the reduction of handling. Not only this, using a trailer the truck could move 18,000 pounds to the load with no appreciable difference in time. Then to make the proposition even more profitable general freight was hauled back to Detroit, so that every mile driven was productive.

The truck has been used for several months and the results are so satisfactory that there is probability that similar trucks will be used to make deliveries and haulage between Detroit and Flint, Lansing, Pontiac and other cities within a 100-mile radius. In fact, within the zone indicated there is every reason to believe that railroad shipments will be abandoned.

TWO HARTFORD PARTS COMPANIES MERGED.

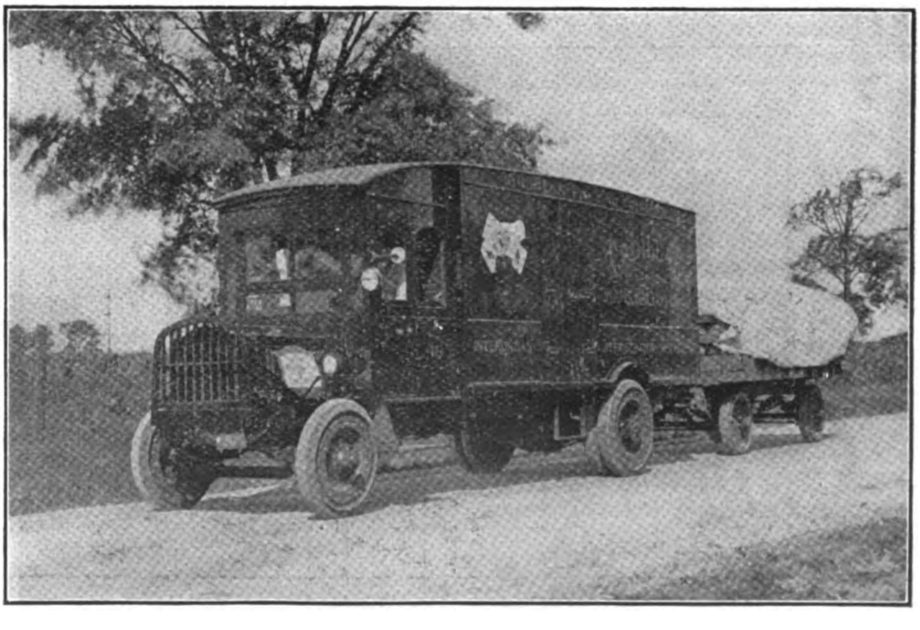
With the consolidation of the Hartford Auto Parts Co. and the Kinsler-Bennett Co., both manufacturers of universal joints and drives, at Hartford, Conn., a new company has been incorporated under the name of the Hartford Automotive Parts Co., with $1,500,000 capitalization. The plant formerly occupied by the Billings & Spencer Co. has been purchased to provide additional manufacturing facilities.

James M. Carney, formerly of the Hartford Auto Parts Co., is chairman of the board of the new company. Other officers are: President, J. McA. Johnson: vice president, F. R. Switzer; treasurer, H. A. Bigelow; assistant treasurer, T. C. Hudson. The directors include the above and H. A. Allen of the City Bank and Trust Co., and Shires Morris, president of Hart & Hegeman Co.

MICHIGAN MAY CONTINUE MOTOR EXPRESS PLAN.

A conference was held between representatives of the Highways Transport Committee, connected with the War Department Preparedness Board, and Gov. Sleeper and representatives of the Michigan Legislature on the proposal of an appropriation to continue the work of the transport committee, so as to lay out rural express routes and thoroughly organize the state in that new system. Until now the plan has been financed by the war board as a war measure. The board, believing that expenditures along that line now could be questioned as a war necessity, referred the committee to the Legislature, which, it is believed, will furnish the necessary funds.

J. H. Cooper has become eastern sales manager of the Walker Manufacturing Co., Racine. He was formerly vice president of the Endurance Tire and Rubber Co.



Packard Six-Ton Truck with Refrigerator Body and Trailer, Used by Sullivan Packing Co., Detroit, for Hauling Meats to Toledo, O.

N. A. C. A. ANNUAL HAND BOOK OF AUTOS.

The National Automobile Chamber of Commerce, New York City, has issued its 16th Annual Hand Book of Automobiles. In this book are shown detailed and uniform specifications of the principal models of motor cars and motor trucks produced by the leading manufacturers in the United States, who are members of the National Automobile Chamber of Commerce.

The gasoline passenger car section shows 110 models and illustrations, while the gasoline truck section includes 70 models and illustrations; there are four models in the electric vehicle section.

The hand book of the American industry has become the standard reference book for prices and specifications of new models among domestic and foreign dealers, export houses, American consuls, secretaries of state, libraries, dealers' associations, automobile and country clubs, etc. The specifications are in tabular form and follow a uniform arrangement for ready reference and comparison. Copies of the hand book of 205 pages are supplied to dealers and the public at the nominal price of 25 cents to cover the cost of printing and mailing.

JOINS OHIO NASH CO.

A. E. Creeger, who has been identified with the Nash Motors Co. of Kenosha, Wis., since its organization, as special traveling representative, has resigned to become associated with the Ohio Nash Co. and will assume full charge of truck sales for that important territory.

CAMPBELL-EWALD CO. MOVES.

The Campbell-Ewald Co. has moved from 117 Fort street, West, Detroit, to new and larger quarters on the eighth floor of the Marquette building, at Wayne and Congress streets.

Tire Manufacturers United in Trade Organization

The annual meetings of divisions of the Rubber Association of America were held in New York in connection with the annual meeting and "Victory Banquet" of the association.

The Pneumatic Tire Division met at the Hotel McAlpin. A roll call of all American tire manufacturers, whether or not members of the rubber association, showed that the 105 men present represented 60 different tire manufacturers.

G. M. Stadelman, vice president of the Goodyear Tire and Rubber Co., Akron, O., was elected chairman, and E. H. Broadwell, vice president of the Fisk Rubber Co., Chicopee Falls, Mass., was chosen vice chairman. It was decided to have an executive committee composed of representatives to be appointed by the following concerns:

Kelly-Springfield Tire Co., New York City; Empire Tire and Rubber Co., Trenton, N. Y.; Hood Tire Co., Watertown, Mass.; Miller Rubber Co., Akron, O.; Portage Rubber Co., Barberton, O.; Firestone Tire and Rubber Co., Akron, O.; General Tire and Rubber Co., Akron, O.; Ajax Rubber Co., New York City; The B. F. Goodrich Co., Akron, O.; Pennsylvania Rubber Co., Jeannette, Pa.; United States Tire Co., New York City; Lee Tire and Rubber Co., Conshohocken, Pa.; Victor Rubber Co., Springfield, O.

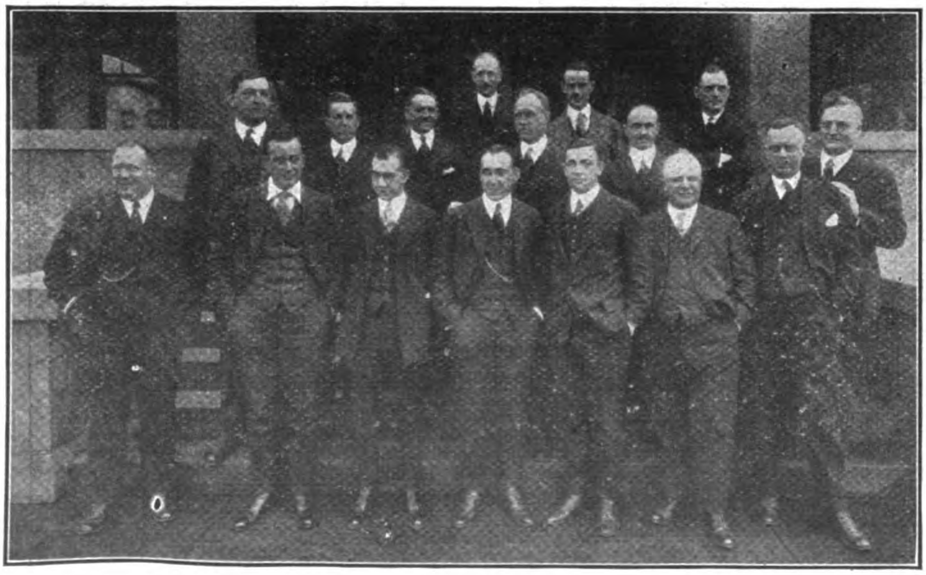
In addition to these the Goodyear Tire and Rubber Co. will be represented on this executive committee by Mr. Stadelman, while the Fisk Rubber Co. will be represented by Mr. Broadwell.

The Solid Tire Division met at the Yale Club. A. G. Partridge of the Firestone Tire and Rubber Co., Akron, O., was elected chairman, and Joseph C. Weston of the United States Tire Co., New York City, was chosen vice chairman. They will represent their concerns on the executive committee, which will be composed of representatives to be named by the following companies:

Fisk Rubber Co., Chicopee Falls, Mass.; the B. F. Goodrich Co., the Goodyear Tire and Rubber Co., Akron, O.; the Hood Tire Co., Watertown, Mass., and the Kelly-Springfield Tire Co., New York City.

GARFORD SALES MANAGERS AT FACTORY CONFERENCE.

A conference of the sales district managers of the Garford Motor Truck Co. was recently held at the factory at Lima, O., this being an annual event. One of the purposes of the gathering was for the field men to meet General Sales Manager J. F. Bowman, who has assumed charge of the distribution of Garford trucks. Mr. Bowman is well known in the industry and trade, he having been for a considerable period sales manager for the Federal Motor Truck Co., and following this was vice president and sales director for the Acason Motor Truck Co. Both of these concerns are located in Detroit. In his work with these companies Mr. Bowman has visited practically every commercial center in the United States, and is in intimate touch with a very large number of individuals and concerns engaged in the trade. In the accompanying illustration Mr. Bowman is standing in the center of the rear line in the doorway.



The District Sales Managers of the Garford Motor Truck Co., Who Attended a Recent Conference at the Factory at Lima, O. Sales Manager J. F. Bowman in the Center of the Back Row.

URGES MOTOR LAW CHANGES IN NEW YORK STATE.

State wide licensing of every person operating a motor vehicle, the examination of all drivers as to moral, mental and physical fitness, the elimination of the illiterate and the unskillful from the drivers of New York, as well as those under the age of 18, and the establishment of a 10 days' beginner's period, are some of the changes in the automobile law of New York state recommended by a traffic conference held in the Traffic Court in New York.

EDWIN DENBY, NOW MAJOR, BACK IN AMERICA.

Further honors have come to Edwin Denby, treasurer of the Denby Truck Co., and formerly a congressman, who enlisted in the Marines as a private, and he is now a major. He is at Beaufort, S. C., having recently returned from several months active service overseas. Maj. Denby was at one time president of the Detroit Board of Commerce.

REVERE RUBBER CO. ADDS TO PLANT.

The Revere Rubber Co., Providence, R. I., a subsidiary of the United States Rubber Co., has awarded a contract for a one-story, 40 by 120 foot addition to its plant, to be erected on Hemlock street, Providence, at a cost of $20,000.

E. C. Dunbar, Detroit, has assumed the chairmanship of a truck board created by the American Automobile Association. John R. Eustis is secretary of the board.

ACME DISTRIBUTORS AT FACTORY CONFERENCE.

A conference of distributors of Acme trucks was recently held at the factory at Cadillac, Mich., at which Sales Manager C. J. Helm and the other officials of the company presented the selling plans as determined for the reconstruction period and the visitors learned first hand of the qualities of the new five-ton Acme truck chassis. There were several social events of interest during the visit of the agents, and the photograph from which the accompanying illustration was made was taken. From right to left, beginning at the top, the group consisted of: A. W. Young, Pittsburgh, Pa.; J. A. Bell, Atlanta, Ga.; J. W. Baker, Columbus, O.; J. R. Brigham, New York City; J. E. Bowles, San Francisco, Cal.; George T. Gould, Boston, Mass.; F. P. Walker, Omaha, Neb.; Fred J. Vandemark, Chicago, Ill.; J. C. Benedict, Greensboro, S. C.; J. W. Felix, Dallas, Tex.; H. A. Cavanaugh, Kalamazoo, Mich.; Wm. F. Martin, Indianapolis, Ind.; Wm. T. Fulton, Dallas, Tex.; E. K. Callahan, Buffalo, N. Y.; H. L. Brown, Denver, Col.; E. C. Hanes, Ft. Wayne, Ind.; Edward Brehm, Brehm-McMullen Co., Minneapolis, Minn.; C. J. Helm, sales manager, Cadillac, Mich., and G. M. Rockwell, Rochester, N. Y.

FULLER PLANS MODERN PLANT.

At the annual meeting of the Fuller & Sons Manufacturing Co., Kalamazoo, Mich., it was voted to tear down the old shop and replace it with a modern building, the same type of construction as used in the two additions during the last five years. The building proposed would be four stories high and 156 feet long, constructed entirely of concrete, steel and brick. It will give a continuous main building 434 feet long, four stories high, with a floor space of more than 125,000 feet. The company has taken on 150 men during the last two months, and now has 477 on the payroll, the weekly pay being in excess of $11,000.

These officers were elected: Directors, F. D. Fuller, W. P. Fuller, L. C. Fuller, Dr. W. E. Upjohn, S. N. Bickerstaff; president, F. D. Fuller; vice president, L. C. Fuller; secretary, W. P. Fuller; treasurer, Dr. W. E. Upjohn.

WALTER H. STROM SUCCUMBS TO INFLUENZA.

Following closely the death of his wife and a little son, Walter H. Strom, president and general manager of the U. S. Ball Bearing Manufacturing Co., died after suffering from influenza, which also caused the death of the wife and child. He was the son of A. A. Strom, who has been the active head of the company since its formation.

SIDWELL SUCCEEDS BLAND.

E. V. Sidwell has succeeded the late Edward G. Bland of Detroit as manager of Fulton Motor Truck Co. of Michigan. He was formerly assistant to Mr. Bland.

SECOND PACKARD TEST FOR TRUCK EFFICIENCY.

Trucks taking part in the second Packard truck efficiency test, which started Feb. 1, are divided into seven classes, as follows: Class A, all six-ton trucks; class B, all five-ton trucks; class C, all four-ton trucks; class D, all three-ton trucks; class E, all two-ton trucks; class F, all 1½-ton trucks; class G, all one-ton trucks.

Total prizes amount to $17,600 and include five awards for drivers, from $100 to $500; five prizes to accountants, from $25 to $125, and five prizes to shipping clerks, from $40 to $225.

Contestants must furnish cost and operating records on standard forms of the National Standard Truck Cost System.

BEGIN PRODUCTION OF TRANSPORT TRUCK.

The Transport Motor Truck Co., Mt. Pleasant, Mich., has begun production. There are more than 500 orders on hand. One model only will be turned out for the time being, a 2½-ton, having 150-inch wheelbase, with Continental motor, Fuller clutch and transmission, Stromberg carburetor, Jacox steering gear, Prudden wheels, Columbia front axle and Clark rear axle. Milton A. Holmes is president of the new company.

RESTRICTIONS ON PNEUMATIC TIRES REMOVED.

The Automobile Chamber of Commerce announces that at a joint meeting of committees representing tire and automobile manufacturers, it was decided that all restrictions that had been adopted as a war measure on the manufacture of certain sizes and styles of pneumatic tires for renewal purposes would be removed and that tires of all sizes would be made as long as there is a demand for them by the public.

HAWKINS LEAVES FORD.

Norval A. Hawkins, general sales manager of the Ford Motor Co., has resigned, and it is announced that he will hereafter devote his attention to his personal business interests. In 1904 Henry Ford asked Hawkins to put the new plant, which was about one year old, on a systematic basis, both in shops and in office. At that time Ford was probably less known in Detroit than Hawkins, who had a reputation of being one of the best certified public accountants in Detroit.

At that time there was not even a drawing or blue print of the Ford model, which was destined to make the name of its builder famous the world over. At that time there was, however, a Ford car, a six. Mainly due to Hawkins' suggestions, Ford abandoned the building of the sixes and concentrated on making fours in just one model, but in a few different styles of bodies.

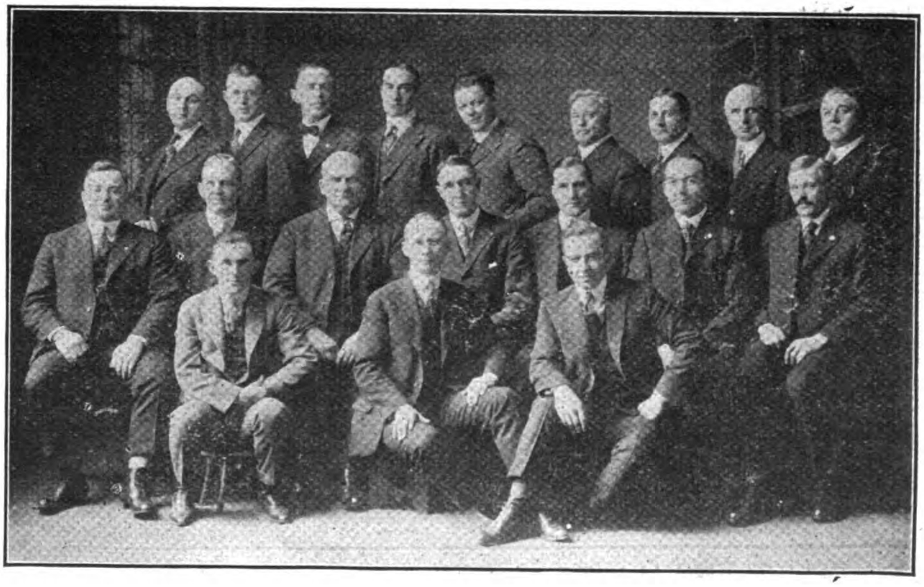
In 1907 Hawkins, who had continued in special work for the company, became commercial manager of the concern, the title being later changed to that of general sales manager. Credit for much of the success of the Ford company is given to him.

The government had Mr. Hawkins assist in the administration work of the motor branch of the Detroit district, which was under the direction of Gen. Goethals, during the war.

LAHATTE A SELDEN DISTRICT SALES MANAGER.

Milner T. LaHatte, who has been assistant to Division Sales Manager C. M. Snow in the southern territory for the Selden Truck Sales Co., Rochester, N. Y., will, March 1, succeed Mr. Snow in the southern territory as division sales manager, with headquarters at Atlanta, Ga.

Mr. Snow's advancement in the Selden organization enables Mr. LaHatte to step into the position formerly held by Mr. Snow.



A Group of the Distributors of Acme Trucks in Attendance at a Conference at the Factory at Cadillac, Mich.

FRUEHAUF NEW MODEL TRAILERS

FRUEHAUF semi-trailer and trailer units, built by the Fruehauf Trailer Co., Detroit, Mich., have been perfected and those that are now produced are considerably improved as compared with those that were first manufactured. The purpose of the company is to build what will afford the largest measure of dependable and economical service and the engineering department has endeavored to design what experience has proven will be the most satisfactory to those requiring highway transportation.

Fruehauf units are in two types, the semi-trailers, which are built with rated carrying capacity of 70 per cent. of four, six, eight and 10 ton loads, and the trailers (four-wheeled) which have rated capacities of 1½, three, six and seven tons respectively. The same general characteristics of design obtain in both types, but the construction necessarily differs somewhat.

The frames of the semi-trailer units are exceptionally well constructed of structural steel channel. The cross members are proportioned to the frame length with the purpose of obtaining strength, and all are strengthened and reinforced by gusset plates. The frames are assembled by riveting. The rear end of the main frame is carried on a sub-frame that is mounted on very long semi-elliptic springs.

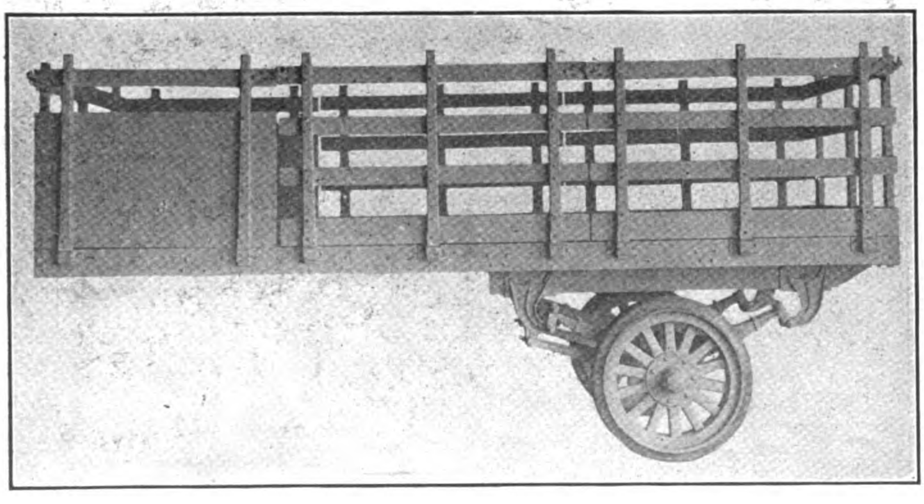
These springs are carefully designed for heavy duty and have large factors of safety. The experience of the company's engineers is that the springs for heavy loads should be flexible, for this minimizes tire and bearing wear and lessens the upkeep expense on all components of the unit. Not only this, less power is required to move a given load well distributed and carried on flexible springs.

The spring hangers are massive and are designed for the springs to be mounted under the frame and not outside of it. The spring shackles are drop forged from special manganese steel, and the spring bolts are turned from solid stock, are heat treated and provision is made for oilers that effectively lubricated the bolts and spring eyes. The bolts are very large and they are fitted to steel bushings, that are renewable when worn in both shackles and the spring eyes. The entire construction is well thought out and developed with much care to obtain endurance in heavy service.

All units having greater rated capacity than four tons are equipped with radius rods to obviate draw stresses upon the springs, and when these are fitted a special spring hanger, such as shown in the accompanying illustration, is used, the radius rod being attached to a special bracket under the dead axle and pivoted on a boss or extension of the front spring hanger, this reducing the angle of the rod and making the draw more nearly in a straight line, especially when the units are loaded. The rods are fitted with hardened steel pins and bushings, which are also renewable when worn. The axle of the semi-trailer is a steel rectangular section with large wheel spindles. The wheels are artillery type, of second growth hickory, and have large hub flanges. The tire dimensions are unusually large and as they merely carry the loads and are subjected to no other stresses, should give exceptional mileages.

The trailer units are built without the conventional steering knuckles for the front axles, the axles used being rectangular steel forgings of great strength. The wheels, axle and springs are designed to turn freely on twin circles and a center plate, this construction obviating side sway, affording greater stability and necessitating the trailer following the tractor. With this design the springs may be placed close to the wheels, so that the wheels may "cut" under the frame and turns can be made in very short radius. While these units are built with reversible and non-reversible types, the use of the reversible or double-end steer is less often required because of the short turning possibilities.

These trailers are designed so that frames of any desired width may be installed, which is a very desirable factor, for practically 75 per cent. of the expense is obviated where platform bodies are required.



Fruehauf New Model Eight-Ton Semi-Trailer, the Main Frame Mounted on a Sub-Frame Carried by the Wheels and Springs. Note the Radius Rods Attached to the Front Spring Hanger.

FORD MUST DISTRIBUTE $19,000,000 IN DIVIDENDS.

The Michigan Supreme Court has confirmed the decree of the Wayne County Court in ordering the Ford Motor Co. to pay special dividends of $19,000,000 to stockholders, but the decrees of the lower court stopping expansion of the business of the company in its extensive smelting plant at River Rouge were overruled.

The contention of Mr. Ford that the Michigan laws, when they stop organization of a corporation for more than $50,000,000, meant for organization purposes only, was sustained. Capital investments, such as profits, borrowed money, are not controlled by the law limiting capitalization.

The court held that Mr. Ford had been arbitrarily usurping the powers of the majority of stockholders, and was in substance making the rights and privileges of the other stockholders incidental to his altruistic plan to let the public have the benefit of company profits in a lower price for automobiles.

The court assessed one-third of the cost of the case to Mr. Ford and two-thirds to Dodge Bros.

RURAL MOTOR EXPRESS FOR LONG ISLAND.

A rural motor transportation company has been established to serve all points on Long Island, N. Y., and arrangements have been made with many shippers for the New York markets. The operating company is incorporated under the name of the Long Island Motor Transportation Co., with offices at 1847 Broadway, New York City. There will be a receiving depot in New York and a large central depot in Long Island City.

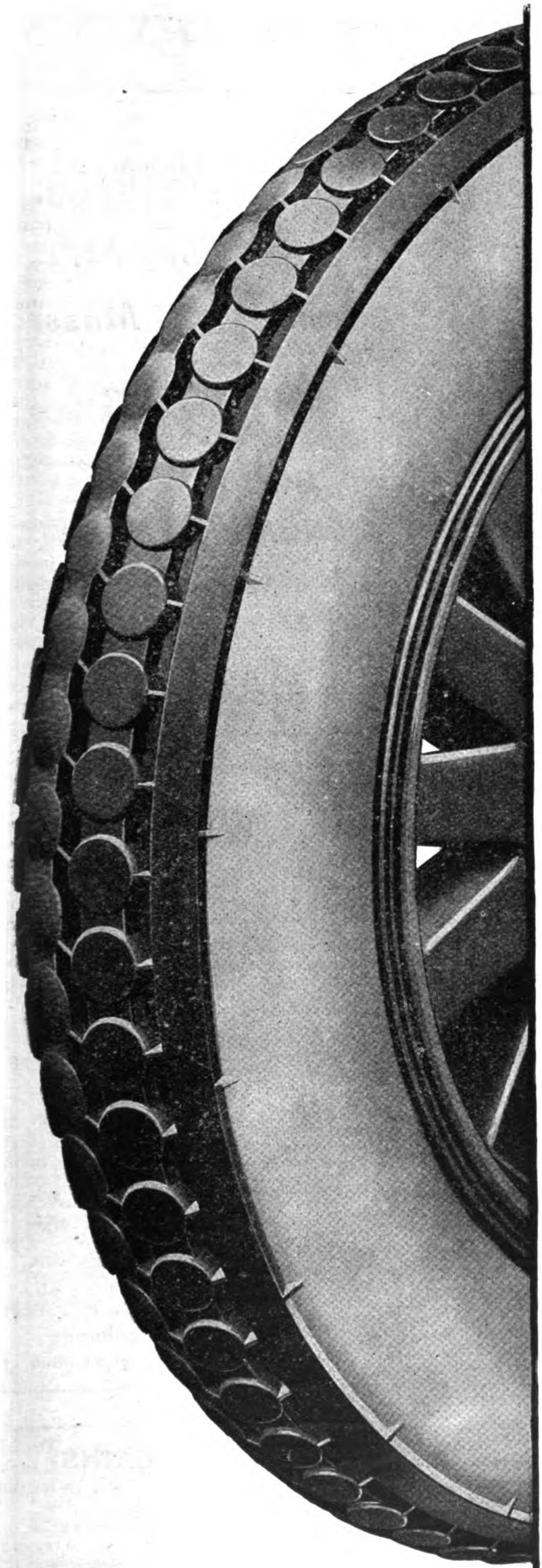
BIG TRUCK ORDER FOR SMALL OREGON TOWN

The Pendleton Auto Co., Pendleton, Ore., distributor in Pendleton and vicinity for the Duplex Truck Co., Lansing, Mich., has placed an order for Duplex trucks worth $300,000. Pendleton has a population of only about 5000. Many of the trucks will be used on wheat ranches surrounding the town.

MILWAUKEE TIRE DEALERS FORM ORGANIZATION.

The Tire Dealers' Association of Milwaukee has been formed by tire and supply dealers of Milwaukee, with these officers: President, Russell L. Stephens; first vice president, George A. Brown; second vice president, Henry F. Stenzel; treasurer, Lawrence J. Engel; secretary, H. A. Packard.

The Pierce-Arrow Motor Car Co. announces that prices on its cars and trucks will be unchanged until Oct. 1.



FISK
TRADE (F) MARK
CORD

FISK
Pnuematic
TRUCK TIRES

for the long,
quick haul—

YOU can recommend them with a knowledge that there isn't any thing better in the market. They are backed up by nearly a quarter century reputation for honest value by

THE FISK RUBBER CO.
OF N. Y.
Chicopee Falls, Mass.

Time to Re-tire?
(Buy Fisk)

TRADE OUTLET

THE PURITAN OBJECTIVE

Highest Efficiency in Service and Material at Exceptionally Low Prices.
OUR PARTS ARE ALL NEW.
We Do Not Wreck Cars. Write for Our Big Money Saving Monthly Bulletins.

ELECTRICAL SPECIALS

6V Ward Leonard Starting motor complete with Bendix drive	$15.00
6V Ward Leonard lighting generator	15.00
6V Trojan motor horn	5.00
6V model G. G. Autolite generators	12.50
Battery Boxes, 11¾ long x8¼ wide, 12 in. high	1.25
Starter Switches—many types—prices up from	1.25
Bosch DU-4 Magnetos—variable spark	30.00
Simms SU-4 Magnetos	25.00
Lighting switch with dimmer	1.00
6V Connecticut lighting and ignition switch	7.50

STARTING AND LIGHTING BATTERIES.

Brand new—guaranteed—with universal terminals—will fit most every car—6 volt—110 ampere	$25.00
12 volt—60 ampere	36.00

Send for Our Circular (Electrical) H-400.

SPECIALS FOR FORD CARS.

6V lighting generator complete—ready to install	$23.00
2V lighting system—complete	17.50
Crown fenders—set of four	18.00
Special ratio gears—4 to 1 ratio set	12.50
Special ratio gears—2¾ and 3 to 1—set	15.00
One man mohair tops—complete	35.00
One man mohair tops—roadster, complete	25.00
Top roofing outfits—touring	12.00
Top roofing outfits—roadster	9.00
Honeycomb Radiators—all models up to 1916	25.00
Honeycomb Radiators for 1917 and 18 models	26.50
Wheels with demountable Baker split type rims, complete set, 4 wheels and 5 rims	23.50

18 in. Steering Wheels with corrugated rim	3.50
Sprague worm type steering gears	3.50
$1 Jointless Piston Rings, each	.75
Sando—special Ford Spark Plugs—each	.85
Master Vibrators	2.50
Stewart Speedometers—complete	7.50

RIMS AND WHEELS.

All makes for all cars. Let us quote you prices.

RADIATORS FOR ALL CARS.

Brand new honeycomb type for all cars. Write for price list.

SPRINGS FOR ALL CARS.

High grade standard springs for all cars. Better prices. Better service.

PACKARD TOURING BODY.

Brand new. Late model, complete with top and windshield painted standard Packard blue with gold stripe. Factory price, $900.00. Our price, $350.00.

STANDARD BODIES.

1918 Abbott Cloverleaf, with top and shield; while they last	$125.00
1914 Maxwell Touring Bodies (shop worn)	35.00

SPECIALS.

18 in. Steering Wheels with corrugated rim	$2.75
20 gal. pressure feed Gas Tanks	10.00
Model "B" Prestotanks—fully charged	8.50
Model "E" Prestotanks—fully charged	7.50
Windshields—all sizes—priced up from	10.00
$1.50 U. S. Tire Gauges	.75

AXLE SHAFTS.

In stock for all cars. Get our prices first.

NEW PARTS FOR ALL CARS.

Gears, Axle Shafts, Bearings.

Transmissions, Axle and Motor Parts, Piston Rings, Pistons, Universal Joints, Hubs and Hub Parts, Springs, Etc.
Write Us for Quotations.

RAYFIELD CARBURETORS.

Brand new model, G 3. 1-¼ in. top intake. $12.00.

MOTORS.

4 and 6 cyl. rebuilt motors. They are not new, but we have rebuilt them ourselves and can guarantee them to be in first class condition. Many sizes and makes in stock from 20 to 90 H. P.

If you are in need of a motor, write for our motor specification sheets.

STEERING GEARS —BRAND NEW—

Many makes and sizes in stock. Can fit most any car. Prices from $8.00 up.

TRANSMISSIONS.

Up to the minute transmissions of all sizes in stock. Complete with levers. We have both the Bell Housing type that is used with all the late makes of unit power plants and the older type that set in center of car.

Sometimes it is cheaper to buy new than to repair the old.

BEARINGS.

All makes and sizes in stock. Bearings suitable for all cars. Immediate deliveries.

ELECTRICAL REPAIRS.

Are you having trouble with your Starter, Lighting Generator, Magneto Coil, Switch, etc.

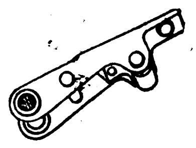
LET THE PURITAN OVERHAUL IT.

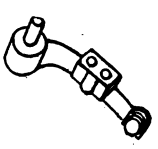
Better service. Better prices.

ELECTRIC LIGHT YOUR FORD.

Complete lighting system. Includes generator complete, storage battery, electric side and tail lamps, switches, wiring, etc. Everything complete installation. Regular price $29. Our price $17.50.

PURITAN MACHINE COMPANY
603 PURITAN BLDG. DETROIT, MICH.
Eastern Branch—245 W. 55th St., New York, N. Y.





Superior Parts and Brushes

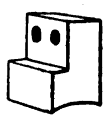
FOR ALL

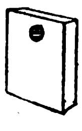
Ignition and Starting Lighting Systems

Used for Years by the Best Repair Shops Everywhere

"They Last Longer but Cost Less"

Write for Catalogue





Specialty Manufacturing Co.
637 Massachusetts Ave., Arlington, Mass.

Lozier Owners

Why Buy
Counterfit Repair Parts
We Have All

Original Parts

Made from Original Patterns.
Order from Headquarters.

LOZIER MOTOR CO.
Fort and 6th Sts., Detroit, Mich.
Service Stations.
E. A. Cornely, Inc., 1445 Bush St., San Francisco, Cal.
Lozier Motor Co. of New York, Inc., 47th St. and 11th Ave., New York City.

AUTO PARTS.

50% to 90% Off List.

24 Hour Service. Unlimited Stock.
Pope-Hartford, Columbia, Reo, Overland and 200 other makes.

Motors,	$20.00 up	E. Presto Tanks,	$4.00
Magnetos,	$3.50 up	B. Presto Tanks,	$4.75
Cylinders,	$3.00 up	Bearings,	50c up
Springs,	$1.00 up	Rims,	$1.00 up

1000 Other PARTS Bargains.

If you want any part not listed here,
Write Us—We Have It.

Conn. Auto Parts Co. Inc.
1070 Main St., Hartford, Conn.

Wilkins & Hovey Co.

35 Albany St.
Cambridge, Mass.

WELDING

GOOD WORK
PROMPT SERVICE

Send us your broken cylinders, frames and machine parts.

Scored cylinders filled and fitted.

Telephone Camb. 4830.

Send it to Detroit

MAGNETOS.

Bosch DU4 Variable spark	$30.00
Bosch DU-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cyl. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	10.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hours service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange
192 Grand River Ave. Detroit, Mich.

MOTOR BARGAINS

A few unused Herschel-Spillman heavy six-cylinder motors. 4-in. bore, 5½ in. stroke, weighing about 850 lbs., for sale at $200 each, less than half of present cost. Excellent for boat or automobile use. A big bargain.

PARKER MOTOR TRUCK CO., Milwaukee.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

TRADE OUTLET

Westchester Accessories Co. Inc.

1777 Broadway, New York City.

PISTON RINGS.

All automobile sizes in stock.

Plain and Inland Parts.

BRAKE LINING.

Complete stock of Thermoid and Raybestos-woven.

We can offer big price incentive to immediate replies.

AUTO SAVE 50-90% FOR 400 CARS PARTS

POPE, PACKARDS, PIERCE, BUICK, STEVENS-DURYEA, KNOX, OVERLAND, ETC.

Motors	$25.00 up	Presto Tanks	$ 4.50 up
Magnetos	4.00 "	New Spotlights	2.00 "
Carburetors	3.00 "	Generators	10.00 "
Rear Axles	15.00 "	Gears	1.00 "
Front Axles	5.00 "	Bearings	1.00 "
Cylinders	5.00 "	Radiators	10.00 "

$12 Diamond Bumpers............$5.50

Jobbers in Bankrupt Auto Supplies.

BRIGHTMAN AUTO EXCHANGE

84 Wooster St., Hartford, Conn.

PRINTING.

250 Business Cards neatly printed and prepaid for $1. Stationary and commercial printing. Write your other wants.

CHARLES LEHMANN.

836 Blue Island Ave., Chicago, Ill.

Magneto Repairs

Skillfully Done Assured Satisfaction

Prompt Service

The repair work turned out of this shop is of the highest merit—because I know how. If you have electrical and magneto troubles, no matter whether it is a

Bosch

Splitdorf — Eisemann

or any other make, I can fix them. My well-appointed plant, coupled with skilled workmen, assures you of expert magneto service. SEND IN YOUR MAGNETO. 24-HOUR SHIPMENT.

REBUILT MAGNETOS
PLATINUM PARTS
GENERATOR BRUSHES
BEARINGS, ETC.

Correspondence Invited.

The Magneto Shop

JOHN BRUNSWICK,

187 Massachusetts Ave., Boston, Mass.

USED BODIES

We carry the largest stock of USED BODIES in New England.

$25. and up

PACKARD, PIERCE-ARROW, MITCHELL, LENOX, POPE HARTFORD, FIAT, HUDSON, CADILLAC, FORD, CASE WHITE and other makes.

Big Stock of New and Used Fenders, Cushions.

AUTO BODY EXCHANGE

414 MAIN ST., CAMBRIDGE, MASS.

Phones: Camb. 1691 or Brighton 1184-W.

Truck Sales Manager Wanted

To a thoroughly capable business builder we can offer a proposition of worth while proportions.

This company will stand the closest investigation and is producing a line of trucks that sell.

Headquarters will be in Michigan. All correspondence strictly confidential.

BOX 300—MOTOR TRUCK.

EXPERT REPAIRING; every known Magneto and Ignition System, Starters, Motors, Generators. **Magneto Exchange and Repair Shop, 269 Halsey Street, Newark, N. J.**

W. J. POLSON'S ELECTRIC CURED BY ELECTRICITY

Tube Patch.

Best Rubber. Better Cured.

Dealers' Net Prices.

50c size, $3.50 dozen. $1 size, $7 dozen. Terms—Parcel Post or express prepaid to any place in United States. 5% off for cash with your order. 30 days' terms if you are well rated.

Some good salesmen wanted.

W. J. POLSON, Kansas City, Mo.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. 40 Mathewson St., Providence, R. I.

Phone Union 4179-R.

Write **AUTO PARTS CO.** For

REPAIR PARTS

Our new bulletin of used parts and prices now ready.

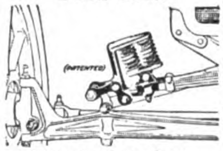
With this bulletin in your shop you can supply repair parts for all makes and models of cars listed and increase your repair business.

It Is Free. Write for It Today.

AUTO PARTS CO.

4103 Olive Street, St. Louis, Mo.

"Champion" Shock Absorbers for Ford Cars.



Front Absorber

A new spring suspension which absorbs jar and rebound. A wonderful E-Z ride suspension. (E-Z to attach.) Guaranteed by mfrs. Exclusive sales; big profit; agents, owners, dealers. Dept. H.

Champion Shock Absorber Sales Co., Inc., Indianapolis, Ind., Mfrs.

Classified Advertising

BRINGS BIG RETURNS

20 Cents a Line, Seven Words to Line.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

GASKETS

VICTOR GASKETS are made to one standard in quality. A quality that guarantees long service and complete satisfaction.
The sterling merits of VICTOR GASKETS have prompted the exclusive use of them by all of the leading passenger car, truck, tractor and motor manufacturers. Once used always specified. Send today for this great list of users—It will carry to you the endorsement of practically all users of gaskets in the industry. Buyers who demand quality, service and price.
Trade literature and discounts at request.

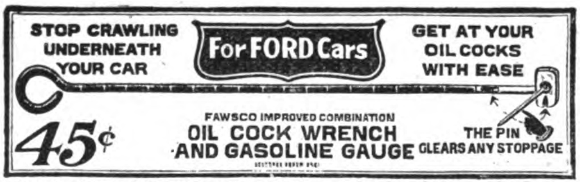
Submit your specifications today. Correspondence solicited.

We Give All Inquiries, Personal Attention.

VICTOR MFG. & GASKET CO.,
• WORLDS LARGEST GASKET MANUFACTURERS •
TROY & 21st, STS., CHICAGO, U.S.A.

SELL A TOOL

A PATENTED WRENCH WITH CLEANING PIN


STOP CRAWLING UNDERNEATH YOUR CAR
For FORD Cars
GET AT YOUR OIL COCKS WITH EASE
45¢
FAWSCO IMPROVED COMBINATION
OIL COCK WRENCH
AND GASOLINE GAUGE
THE PIN CLEARS ANY STOPPAGE

Facsimile of Display Card furnished with each dozen

A notched stick will turn an oil cock, but it may be stopped up instead of empty. The cleaning pin is patented.

FAWSCO IMPROVED COMBINATION

OIL COCK WRENCH AND CLEANER

AND GASOLINE GAUGE

The tool—22" long

This tool is the one most needed by all owners of Ford Cars as it will not only accurately measure the Gasoline in your tank, but provides the only sure means of learning whether you have oil in the crank case or not.
Made of coppered Bessemer steel rod, nickel plated and black enameled and is guaranteed to give complete satisfaction.
Packed 12 in a heavy corrugated carton, one of them mounted on a display easel, the balance in separate envelopes.

Your Jobber can supply

Manufactured by

J. H. FAW, Inc.

37 WARREN STREET NEW YORK CITY

Big Money in Electrical Repairs!

If you cannot repair electric starting and lighting equipment intelligently, your customer will go elsewhere for this service. He will take the rest of his trade with him. There is more money in electrical repairs than in any other department of the garage business. The demand is enormously increasing.

Weston

Model 280

GARAGE TESTING INSTRUMENT

is the best, the most reliable and therefore the cheapest electrical equipment for you. It enables you to determine promptly and accurately the condition of the electrical equipment of any automobile, just where the trouble is and just how to remedy it. We are returning to normal conditions as rapidly as possible, but we necessarily must complete government work in hand before full normal service can be rendered.

WESTON ELECTRICAL INSTRUMENT CO., 103 Weston Ave., Newark, N. J.

Write for our **Special Proposition.** *Branch Offices in the Larger Cities.*

For the TIRE SHOP, GARAGE or REPAIR SHOP

Heintz Automatic Electric Steam Vulcanizer

PAT'D APRIL 9TH 1918
OTHER PATS PENDING

A wonder worker and constant profit producer. This equipment is guaranteed to be right for any shop and the business is waiting for those who can do the work. Heintz distinct features are—

1. No danger of fire or explosion. 2. It does perfect work. 3. Vulcanizes by steam heat. 4. Heated by electricity from light socket. 5. Steam pressure and temperature automatically controlled. No attention required. 6. No boiler or fireman needed. No watching of steam pressure. Made in two sizes.

It consumes less electricity than an electric flat iron. Capacity larger than you will probably ever require.

The Heintz is a practical guaranteed vulcanizer, which has always proved a big money maker for all who use it.

Write Us for Prices and Description Now.

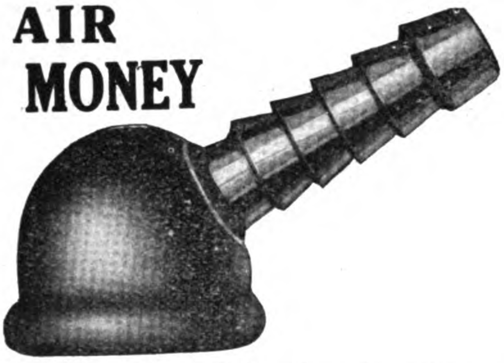
JAS. C. HEINTZ & CO., 2067 East 9th Street, Cleveland, Ohio

Exclusive Licensees Under Heintz Patents.

JOBBERS, Write for our Proposition.

CANADIAN DISTRIBUTORS: **Canadian Fairbanks-Morse Co., Montreal, Canada.**

FREE AIR COSTS MONEY



when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Universal Inflating Valve

to your air hose.

Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve.

Made to fit any diameter of hose from ¼ in. to ⅝ in.

PRICE $1.50 in U. S. A.

Manufactured by **A. SCHRADER'S SON, Inc.**
800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted to owners of pleasure cars and dealers who serve them.

PAT. APL'D FOR
TRIPLEXD
TRIPLEXD
GASOLINE HOSE

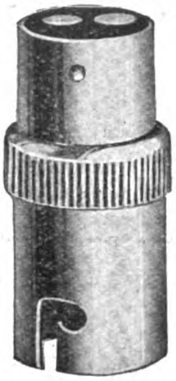
METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

227 Tillary Street. **Write for Our New Circular.**

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

A New Device for Ford Cars

HEADLIGHT EQUALIZER



THIS little device is inserted in the lamp socket of the right hand headlight, is locked into place by the knurled locking nut, and the lamp plug is then inserted into the open end of the Equalizer.

The following results are obtained:

Much brighter lights.
Uniform light at all speeds.
Bright lights at low speed.
Protection for the bulbs.

If one bulb burns out, the other remains burning.

Ford owners have always been bothered with poor lights at low engine speeds. This device corrects all this. No electrical or mechanical knowledge required for attaching, and the cost is insignificant.

List Price 75 cents each, subject to our regular trade discounts.

Culver-Stearns Manufacturing Company

WORCESTER, MASS. DETROIT, MICHIGAN

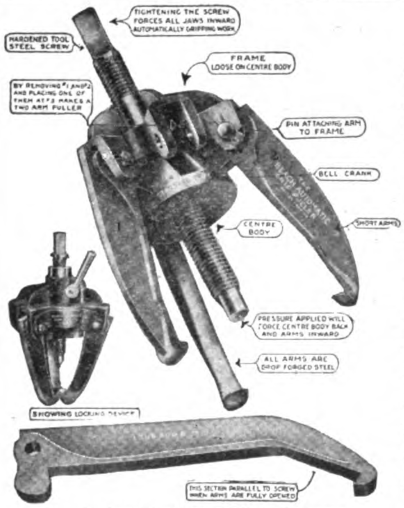
Distributed by

J. H. Faw, Inc., 37 Warren St., New York, N. Y. Manuel Bergman, 1777 Broadway, New York, N. Y.
M. A. Bryte, Inc., 543 Golden Gate Ave., San Francisco, Cal.; 2208 South Michigan Ave., Chicago, Illinois.

GREB GRIP AUTOMATIC PULLER

BEACH PATENT

BOSTON SHOW
SPACE 611.


TIGHTENING THE SCREW FORCES ALL JAWS INWARD AUTOMATICALLY GRIPPING WORK
HARDENED TOOL STEEL SCREW
FRAME LOOSE ON CENTRE BODY
BY REMOVING #1 AND #2 AND PLACING ONE OF THEM AT #3 MAKES A TWO ARM PULLER
PIN ATTACHING ARM TO FRAME
BELL CRANK
SHORT ARMS
CENTRE BODY
PRESSURE APPLIED WILL FORCE CENTRE BODY BACK AND ARMS INWARD
ALL ARMS ARE DROP FORGED STEEL
SHOWING LOCKING DEVICE
THIS SECTION PARALLEL TO SCREW WHEN ARMS ARE FULLY OPENED

A Combination of 2 or 3 Arms.

Gear Pulling Made Easy

The GREB AUTOMATIC GRIP AND GEAR PULLER gets a job done quick and without danger or damage. This means larger profits and quicker work.

Scientifically designed, well made, quick acting, strong, simple and trouble-proof. Adjusts itself instantly to work—locks in any desired position.

We also make the BEACH RIM TOOL.

TWO SETS OF ARMS

Senior Size—Capacity 1" to 10" and 1" to 18"
Junior Size— " 1" to 4" and 1" to 9"

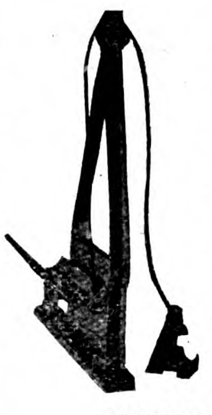
10 DAYS TRIAL

If your jobber does not have them, we will send you one. Try it ten days. If not satisfactory return it to us and we will refund your money.

THE GREB CO.

202 State Street, Boston, Mass.

THE PEERLESS HAND HOIST



FOR ANY MAKE OR TYPE OF TRUCK.

A wonder in efficiency and speed. It will fit any chassis and body. Weighs but 200 pounds. Simple, fool proof, wholly dependable and will last for years in the hardest service.

Any one that can drive a truck can hoist the heaviest load to 30 or 50 degrees in the longest body in less than two minutes. The smaller the body and load the quicker the action.

SINGLE CABLE QUADRUPLE.

WORM GEAR DRIVE

But two gears are used, quadruple worm and gear (both machine cut) and housed to protect from dirt and dust.

The single cable makes an even pull. Compact and can be installed without drilling holes in chassis frame. The body hitch is also furnished.

We specialize in building all-steel bodies for any need.

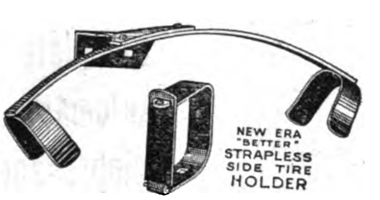
Write for complete information.

THE AUGLAIZE MOTOR CAR COMPANY

NEW BREMEN OHIO

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

New Era "Better" Strapless Side Tire Holder.



Made of steel, has no cast parts to break and no straps to wear out or be lost. The locking device is a part of the tire holder. Tire easily slips into place and is quickly adjusted. A convenient, light tire carrier that has many exclusive advantages. Self-expanding carrying rim can be furnished extra where demountable rims are not used.

Ask your dealer for the New Era "Better" Strapless side tire holders. Prices $2 to $3.

New Era Spring & Specialty Co.

1177 Hamilton Ave. **Grand Rapids, Mich.**

Anti-Borax
WELDING
FLUX

OUR Brazing and Welding Fluxes for Blacksmith work and Acetylene or Electric Welding of all kinds of metal are considered by all users to be the best on the market. Order Anti-Borax Fluxes and get the best results.

MANUFACTURED BY

Anti-Borax Compound Company

FT. WAYNE, INDIANA.

Perfection Springs

2000 Ford Fronts
200 Maxfer Rear
200 Smith Form A Rear
ALL OTHER MAKES

Immediate Deliveries **Dealers write for prices**

Geo. Lawrence, Inc.

Cambria Street, Boston

We Pay Spot Cash for Worn-Out Magneto Points

Old magneto points, and, in fact, all broken or useless platinum, gold or silver accessories, painters' gold-leaf cotton, etc., are worth money to you. Mail them to us and we will send you immediately their highest value in spot cash, and will hold the goods subject to your approval of our price.

Send us also your dilapidated jewelry, silver-plate, diamonds, watches, anything containing gold, silver or platinum or jewels. We pay prices that make it worth while. Mail them today.

Dun and Bradstreet References

OHIO SMELTING & REFINING CO.
914 Park Building, Cleveland, Ohio

Battery Charging Pays Big Profits

HOBART BROTHERS
HB
TROY, OHIO

THIS HB 7-Battery Charger will recharge 1 to 7 6-volt storage batteries or their equivalent, at a time. Current costs 12c to 15c per battery. Motorist pays 75c to $1.50. Figure the profits for yourself! HB users are making $100 to $150 clear profit every month. With more old cars being driven and with electric equipment on every new Ford, profits will increase tremendously.

$15 Puts This Money-Maker in Your Garage

Balance in 9 monthly payments of $20 each. Earnings should easily pay for outfit. Pin your check for $15 initial payment to this ad. and get HB Charger on trial. Sold under HB absolute money-back guarantee. You run no risk.

Order your HB Charger today. Operates from your city current or engine. Requires no electrical knowledge. Big profits—quickly made. Don't delay and lose money—send today for trial order.

Hobart Brothers Company

Box C2 **TROY, OHIO**

Successful Manufacturers Since 1893.

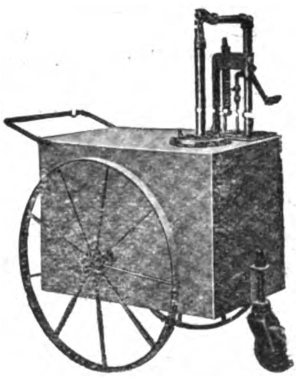
PROFITABLE BUSINESS IN GASOLINE AND OIL

Any line is profitable only when volume of sales is sufficient to show worth-while results. You will command a bigger share of this profitable trade when you have installed

BOWSER Gasoline and Oil Storage

Show your community that you are prepared to give them real service in this respect. Put a Bowser Outfit at the curb and you will get the business, and at a good profit. So easy, so accurate, always ready.

Just tell us to prove it to you. You have nothing to lose and all to gain.



Portable Lubricating Oil Outfit.

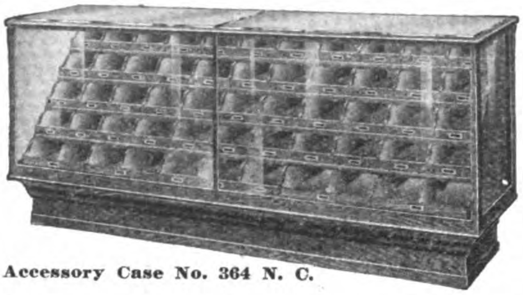
S. F. BOWSER & CO., Inc.
Fort Wayne, Indiana, U. S. A.
Canadian Office and Factory, Toronto, Ont.

London
32 Victoria St., S. W. 1,

Paris
5 Rue Denis-Poissons

Sydney
6 Castlereagh St.

Havana
Lonja del Comercio 427



Accessory Case No. 364 N. C.

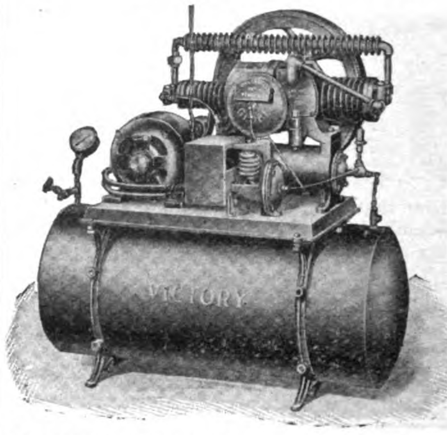
THIS CASE SELLS ACCESSORIES

Never idle, always anxious to make a sale, this special accessory case is a splendid investment. It shuts out dust and keeps the stock fresh and bright. Reduces the cost of selling because each customer practically sells himself. With this case your salesmen can wait on more people in less time and with less confusion.

Case is well built, golden-oak finish, contains from 35 to 70 various size drawers (the number depends upon the length of case), each drawer has bronze card holder and pull. Double-width drawers with removable partitions are provided for larger articles. Heavy beveled plate glass top. Shipped knocked down (set it up yourself in no time) to cut freight cost. This case is nominal in cost and successful accessory dealers have found it ideal. Write for prices. Immediate shipments are being made.

DETROIT SHOW CASE CO.,
479 Fort St. W.,
DETROIT - MICHIGAN

VICTORY



Complete Automatic Compressor Unit

ACE OF ACES

GLOBE TYPE B—Original Two-Stage Garage Compressor. Saves power, time and money.

WONDERFUL new system of AUTOMATIC LUBRICATION insures Oil-Free Air, provides abundant and continuous lubrication and wastes NOT AN OUNCE of lubricant.

Automatic Pressure Unloader protects belts, fuses and motors.

15 Sizes and Styles of LAST WORD Equipments from which to select.

Desk C.

Globe Manufacturing Co., Battle Creek, Mich., U.S.A.

REG. U.S. PATENT OFFICE
IRONCLAD
KHAKI TWILLS
GUARANTEED FAST
WEARS LIKE LEATHER

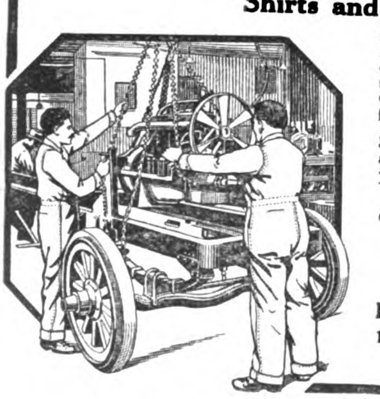
UNCLE SAM'S FIGHTING BOYS WEAR

IRONCLAD KHAKI

(Twill Cloth)

You men and women on the "firing lines" of industry should wear garments of this patriotic economy cloth, too. It's fast color and ***wears like leather***.

Coveralls, Overalls,
Shirts and Pants



made of the genuine IRONCLAD KHAKI (the kind Uncle Sam uses) carry the yellow "Army label" like the above. LOOK for it and the Guarantee Bond in the garments before you buy.

See for yourself what Ironclad Khaki and Miss Ironclad Khaki, the special woman's overall cloth, look like. Write today for free samples.

Garments on Sale by Dealers —Everywhere.

We are makers of the cloth only

FRANKLIN MANUFACTURING CO.
134 Market Place Baltimore, Md.

Jos. DIXON'S
GRAPHITE GREASE
No. 677

Tires and Gas Aren't All

Mr. Accessory Dealer—You make every effort to sell your customers tires that stand the gaff for many miles. You keep your tank full of "gas" that gives the most mileage per gallon.

But how about lubricants?

The matter of proper lubrication is just as important to you as to your customers. Customers are growing more watchful of what they buy and what they spend. It pays in the end to sell and recommend

DIXON'S
GRAPHITE
Automobile
LUBRICANTS

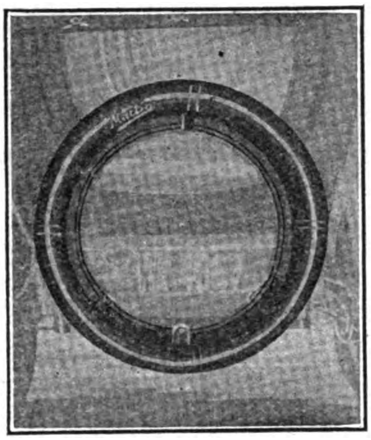
Dixon's put a veneer over bearing surfaces that lasts long and makes a car run farther and better. That's what your customers want. Be ready to meet their demand. Write for Dixon's Dealer's Deal No. 49-G.

Made in Jersey City, N. J., by the
JOSEPH DIXON CRUCIBLE CO.
DXN TRADE MARK **ESTABLISHED 1827** DXN TRADE MARK

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.

Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts. The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

Coil Replacement 90% Big Profits

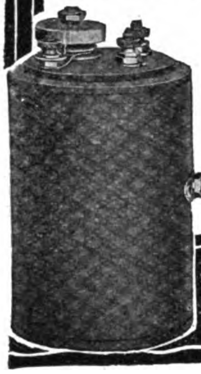
Fully 90% of cars in use are coil equipped. To the enterprising service man, this fact will present a wonderful opportunity for profit on coil replacement business, especially if he is stocked with

JEFFERSON COILS

"The only complete Interchangeable Line of Battery Replacement Coils."

For Jefferson Coils will enable you to give every customer instant service. No big, varied, costly ever-changing stock of coils is required.

Jefferson Coils prepare you for every emergency. A small stock of Jefferson Coils can be adapted to fit all makes and models of battery equipped cars. Flexible caps, terminals and brackets make these coils answer every requirement.



Jefferson Coils are of highest quality; reliable and long lasting. Fully guaranteed.

SEND FOR COIL LIST

showing list of all cars that are Coil-Equipped and the types of Jefferson Coils and Brackets to be used as Replacements.

JEFFERSON ELECTRIC MFG. CO.
429 So. Green St., Chicago

JEFFERSON
Battery Ignition Coils

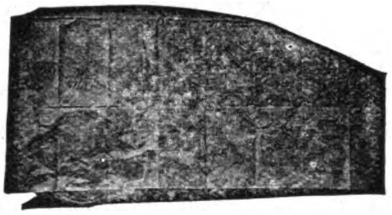
TRACTOR WORLD

Monthly **20c the Copy** **$2 the Year**

A Tractor Journal devoted to the tractor industry and trade

Published by

The Automobile Journal Publishing Company
PAWTUCKET, RHODE ISLAND



KENNEDY AUTO STORAGE COVERS

Furnish efficient and economical protection for cars in dead storage. They are made of heavy, durable paper in standard sizes to fit any cars.

MADE ONLY BY

THE KENNEDY CAR LINER & BAG CO.
SHELBYVILLE, IND.

BURKE AUTOMOBILE PRODUCTS

THE BURKE Ox-iliator

Ox-Iliator

supplies the gasoline motor with additional oxygen (moisture) needed for complete combustion; consumes carbon; saves fuel; increases motor power. Inexpensive, easily installed.

Oxy-Genii capsules

double efficiency of any air moistener; surcharge water through which air passes with free oxygen. 30 capsules—3 months supply—75 cents. Write for booklets.

Oxy-Genii

AUTOMOBILE DEVICES COMPANY
PHILADELPHIA, U. S. A.

B
BUNTING BEARING BRONZE
B.B.B.CO. No 1

Same quality as our finished bronze bushings and bearings used by manufacturers the country over.

Your repair stock is not complete without it.

All leading jobbers
Ask for catalog N

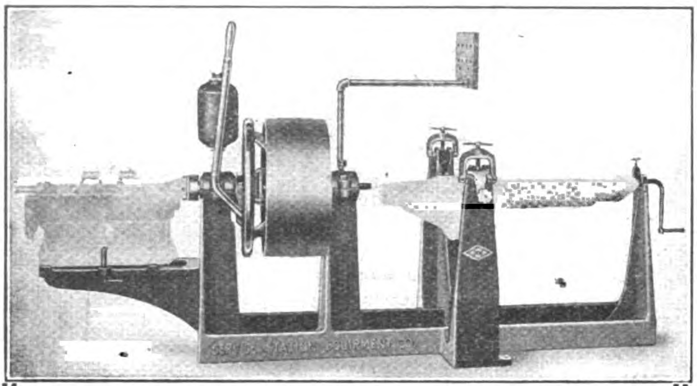
The Bunting Brass & Bronze Co.

727 SPENCER STREET
TOLEDO, OHIO.

CORED BARS

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3½
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15¾
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20



The American "Junior" Combination Bearing Burning-in and Motor Test and Running-in Stand

WITHIN THE REACH OF EVERY FORD DEALER AND REPAIR MAN

The **American Junior** is constructed so that the bearings of the Ford Block are exposed to the view of the operator while being burnt-in. The burning-in Base is constructed with openings large enough so that the Pistons and Connecting Rods can be installed or fitted without removing the Block from the machine. The Block is held in position with quick acting clamps set in guides.

The **American Junior** is constructed along the solid unit principle, no bolts or rivets are used in the frame. This eliminates vibration and also the danger of the frame shaking loose from constant use.

The Motor Test part of the machine can be operated independently or at the same time that the bearings are burned in. This machine has the quick adjusting alignment device on right hand motor support for aligning the Universal Joint quickly and accurate. The clutch is also equipped with a tryout wheel so that the stiffness of the motor and bearings can be determined without removing either unit from the machine.

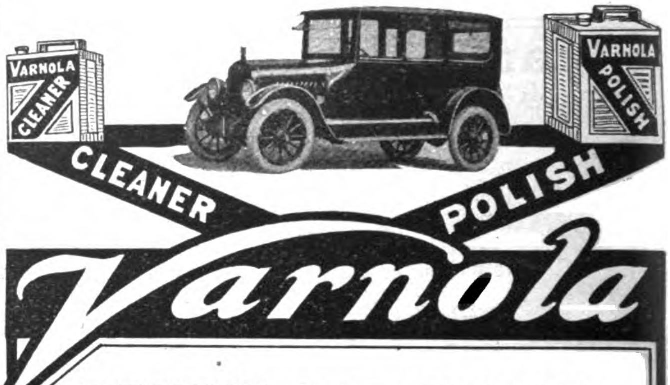
The **American Junior** comes completely equipped with gasoline tank inlet and outlet water connections, and coil support as shown in illustration.

Price $197.50

We manufacture a full line of equipment for Ford and Fordson Service Stations. Write for Catalogue.

All equipment manufactured by this company is approved by the equipment department of the Ford Motor Company before it is placed on the market.

SERVICE STATION EQUIPMENT COMPANY, Inc.
MANUFACTURERS
1201-1211 Cortland Street Chicago, Ill.



RENEW CAR FINISH PERFECTLY

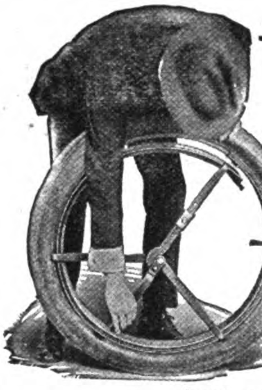
THEY restore varnish and enamel, on wood and metal, to the original appearance. The Cleaner removes grease, dirt or corrosion from the surfaces and the Polish gives a high lustre that will endure from 30 to 60 days.

A pint can of the Cleaner and a quart can of the Polish will suffice for any size or type of car for six months. The price for the two, sold only in combination, is $1.50

JOBBERS AND DEALERS

You know the reasons why other automobile cleaners and polishes do not satisfy. Varnola products are sold with a guarantee of satisfaction. The demand is constantly growing. The sales probabilities are extremely large. Our trade discounts are very liberal. Write for them today.

American Manfg. & Supply Company
BOSTON 9 WILTON STREET (Allston District) MASS



REMOVE *ANY* RIM

with the

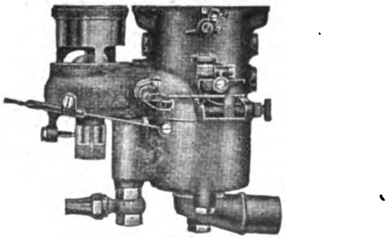
"Lawco" Rim Tool

(Patents Pending)

Do in a minute what now takes an hour without injury to rim, tire, or valve stem. Use the "Lawco" Rim Tool. Closes compactly. Weighs 5½ pounds. Only $3.50.

Dealers write for proposition

Dept. G. THE F. H. LAWSON CO., Cincinnati, Ohio



YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

More Mileage—More Power—More Speed

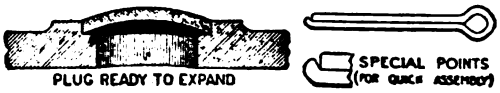
Get him to try it for 15 days. Satisfaction guaranteed.

WEBBER MANUFACTURING COMPANY
Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway

SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

16 lbs. Assorted Springs................	$2.00
25 lbs. Assorted Cotters................	5.00

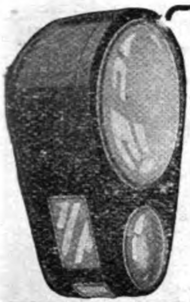
Subject to Market Changes.
Send for Catalogue.


PLUG READY TO EXPAND
SPECIAL POINTS (FOR QUICK ASSEMBLY)

Welch Patent Expansion Plug.
For Closing Core Holes.

M. K. HUBBARD SPRING CO., Pontiac, Mich.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)



King Safety Tail Light takes the fear out of night driving—

Equip your car with one NOW

For particulars write

KING-BULL MFG. CO.

123 E. Ontario St.
Chicago.

NEW DEPARTURE BALL BEARINGS

Strength
Stamina
Service

The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

ADAMSON

VULCANIZERS

The Only Complete Line

MODEL "E" 5-Minute Vulcanizer repairs tube punctures—Price $1.00 complete.
MODEL "U" repairs tread cuts and abrasions, mends inner tubes—Price $2.00 complete.
MODEL "T" makes ordinary tube repairs—Price complete $1.50.
MODEL "S" for garage use, makes tube repairs up to 12 inches—Price complete $12.00.

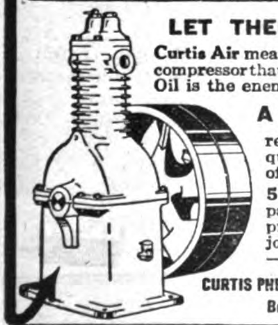
Sold by Jobbers and Dealers Everywhere.

ADAMSON MFG. CO., - - - East Palestine, O.

CURTIS AIR FREE FROM OIL

MOTORISTS *Have* CONFIDENCE IN THIS SIGN

LET THEM FIND IT AT *YOUR* DOOR.



Curtis Air means more mileage, because **Curtis** is the only air compressor that can't flood cylinder with more oil than it can use. Oil is the enemy of rubber. It rots tires, causing blow-outs.

A Curtis Compressor Is Dependable

requires practically no attention, costs very little, quickly pays for itself, always delivers the kind of cool, clean air that makes tires last longer.

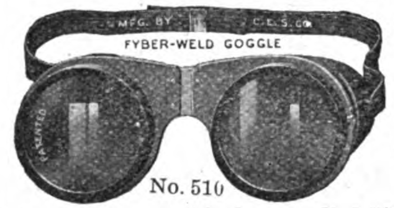
5 sizes and 125 combinations. Write for full particulars and let us tell you why the **Curtis** will prove to be your best investment. Ask your jobber for prices—but be sure and mention **Curtis**—the name is your protection against substitution

CURTIS PHEUMATIC MACH. CO. 1621A **Kienlen Ave. St. Louis, Mo.**
Branch Office: 521A **Hudson Terminal, New York**

GOGGLES FOR WELDERS.

Fitted with "Essentialite" Lenses.

THE FIBRE WELD.



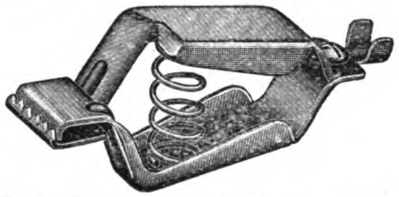
Frame: Vulcanized fibre, non-conductor of heat and electricity, non-inflammable and infusible not affected by moisture, leather center, ventilated side pieces, adjustable elastic head band. We have demonstrated conclusively that with these lenses we vanquish the so-called "fatigue-weariness" and headaches caused by Ultra Violet and Infra Red rays. Circulars and prices at request. Price each, prepaid, **$3 pr.**

Manufactured by

CHICAGO EYE-SHIELD COMPANY

2300 Warren Ave., Chicago, Ill.

UNIVERSAL BATTERY CLIPS



Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals.

No. 21-A—lead plated—1½" spread of jaws.

Sample mailed postpaid for 15c in stamps.

Single Lots, Each 20c. Lots of 10, Each 15c. Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O.

WM.B. SCAIFE & SONS CO
PITTSBURGH, PA
BRAZED
AIR TANK

SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture

SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

DETROIT STORAGE BATTERIES

HAYES WIRE WHEELS

NEW ENGLAND SALES & SERVICE

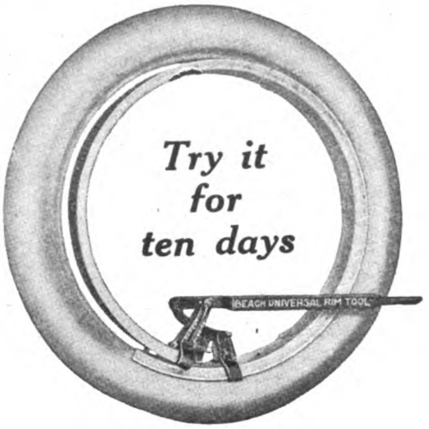
MITCHELL & SMITH INC.

1090-1092 COMMONWEALTH AVE. BOSTON, MASS

WE REPAIR ANY MAKE OF BATTERY OR WIRE WHEEL ...

GREB RIM TOOL

BEACH PAT. PEND.



SEE US
AT
BOSTON
SHOW,
SPACE 611

"Wallop" your rim with a hammer to force it in or out of place and you are bound to have greater trouble next time.

DO THE SENSIBLE THING

Provide yourself with the most powerful rim tool on the market and save time, trouble and rims. With the

Greb Rim Tool

You can quickly expand or contract any make of cross-split demountable rim—the Greb is universal and takes them all.

Ten Days' Trial If your jobber does not have them, we will send you one. Try it for 10 days. If not satisfactory, return it to us and we will refund your money.

JOBBERS AND DEALERS, Get Our Proposition

We also make the Greb Automatic Grip wheel and gear pullers

THE GREB CO.

202 State Street,
BOSTON, MASS.

mighty handy and a big seller!

WORKRITE
HYDROMETER OUTFIT

Here is a high-grade battery hydrometer fitted in a glass jar for holding distilled water. The large rubber collar on hydrometer makes jar dust and evaporation proof. Always ready for testing or filling battery. Has many special features.

DEALERS CASH IN

The Workrite Hydrometer Outfit is being advertised very extensively in owner magazines. Put in a stock and get your share of the profits. Every car owner who sees one wants it. List Price, $1.50.

Write today for full description and discounts.

The Workrite Mfg. Co.
5612 Euclid Ave.
Cleveland, Ohio

Directions
Last Filling
Care of Battery

YOU CAN MAKE BIG PROFITS
Charging Auto Storage Batteries

Battery charging this spring means bigger business than ever before. More old cars are being driven, and every new Ford is to have electric equipment. Somebody is sure to get these profits. Are you? By preparing **now** for this big business, you can easily clear

$150 to $200 a Month Extra Profit

with this 32 Battery Capacity Charger

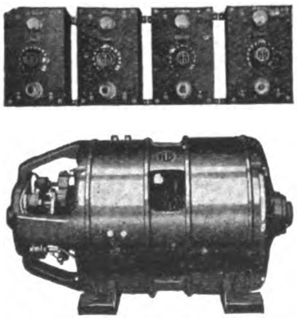
What you can make depends entirely upon yourself. If you go into this business right and push it hard so as to need large capacity to charge the batteries that will be brought to you, we recommend this new HB 32 Battery Capacity Charger. It contains an amply designed 5 h. p. Motor, operating from city current and developing 2 KW Generator capacity. It will charge 32 6-volt batteries or their equivalent at one time. Four separate charging lines and panels permit individual attention to every battery. It is a real money maker, which, with convenient terms of payment offered

Will Easily Pay for Itself

while you use it. Under **absolute money-back guarantee** you run no risk. Write at once for further information, prices and terms. **Start this money-making business now.**

We can furnish smaller outfits, either for use on city current or with belt drive. Write for further information.

Hobart Bros. Co.
Box 2C TROY, OHIO



Service Stations & Garagemen

Big worth-while profits with astonishing increase of trade

immediately follows your taking on

NEW YORK REPLACEMENT IGNITION COILS

95% of all cars are coil equipped—every one a prospect. No large investment necessary. A few dollars will start you because a small quantity of different model coils fit ALL CARS.

Fifteen years coil building experience enables us to produce a coil that gives a crashing big hot spark—even when battery is low—that insures easy starting and perfect running on present day low grade gas.

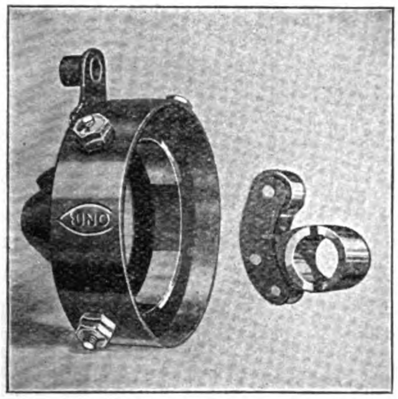
NEW YORK COIL CO
NEW YORK, U.S.A.

They are guaranteed for the life of the car. Don't let your competitor get the nicest piece of business ever offered but **write today for trade prices** and circular giving list of proper coil for each model car.

NEW YORK COIL CO.

338 Pearl Street New York, N. Y.

This Is the Timer You Want



CUNO
Timers
Give
Satisfaction

A high class, well built instrument. Can be attached to any Model T Ford Car without change. Built to resist wear. Indestructible light steel case—handsomely black enameled.

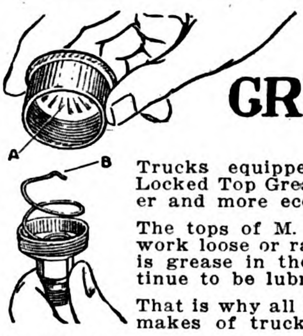
Improved roller arm assembly. Roller and pin of special steel, hardened. Extra quality fibre ring. Constant lubrication.

Dealers, write for proposition.

Gives Real Service TRADE CUNO MARK **Price $1.50**

The Cuno Engineering Corp.
Meriden, Conn., U. S. A

This Is the Best



M. & E. GREASE CUP

(Patented)

Trucks equipped with M. & E. Ratchet Locked Top Grease Cups must afford longer and more economical service.

The tops of M. & E. Grease Cups cannot work loose or rattle off. As long as there is grease in the cup the parts will continue to be lubricated.

That is why all Packard and other leading makes of trucks are so equipped.

In sketch "B" shows the pawl, "A" the notches in the top of cup. When the top is turned the pawl slips from notch to notch and the top is always locked.

M. & E. Ratchet Locked Top Grease Cups are truck insurance. Made in all sizes. Steel or brass.

Evans Model "Hele-Shaw" Clutches ***Evans Alignment Joints M. & E. Universal Joints***

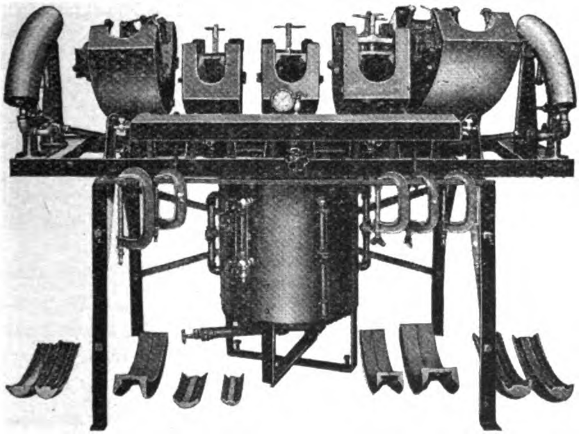
The U. S. and British governments approved the American made F. W. D. trucks. These trucks met every test and were used in the hardest foreign service. All F. W. D. trucks were equipped with Evans model "Hele-Shaw" Clutches and Evans Alignment Joints. The records of F. W. D. trucks in foreign service justly proves the quality of these parts.

Write Department I for facts, prices and discounts.

MERCHANT & EVANS Co
NEW YORK PHILADELPHIA WHEELING
BALTIMORE CHICAGO
ATLANTA ST. LOUIS
CLEVELAND KANSAS CITY

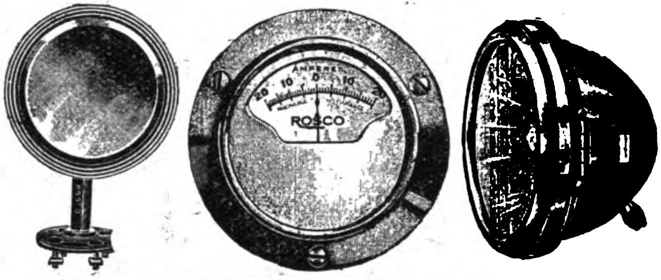
THIS YEAR - - - AN OVERWHELMING PROSPERITY FOR TIRE REPAIRERS.

Automobile manufacturers now back to normal capacity. The thousands of back orders being filled means many more thousands of tires to be repaired. Vanderpool 5 Cavity Vulcanizer has capacity of $100 worth of work a day. We supply complete outfit. We send you FREE TIRE REPAIRING MANUAL—explains entire workings of the business. Vanderpool Vulcanizer used by veteran tire repair men in preference to all others because it repairs tires exactly as they are made at the factory—the only principle that is correct.

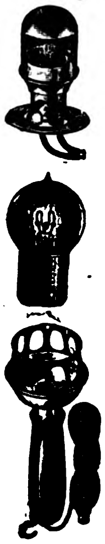


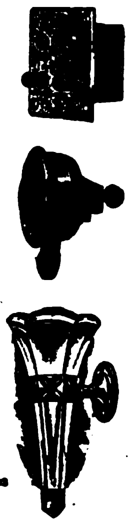
On answering address Dept. R6.

The Wm. Vanderpool Co., Springfield, O.



ROSCO
TRADE MARK

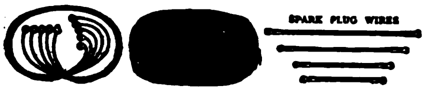




Our Line is a Money-Maker for you—Stock Now—Immediate shipments.

Write for
CATALOG
illustrating our Complete Line with Prices

It Will Pay You



A. W. ROSEN & CO.
MANUFACTURERS
610-614 Broadway New York

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

The Little Salesman for RELIABLE SERVICE & QUALITY

BUY YOUR AUTOMOBILE & TRUCK SUPPLIES *from*

The Little Salesman

of The New England Mills Co.

THESE ARE OUR REFERENCES!

When your banker hands you a certified check you know it is good. Have this same banker certify our references. Insist on his telling you about our RE-SPONSIBILITY, who we are, and what our reputation is.

R. G. Dun & Co., Bradstreet & Co., and the National Bank of the Republic, Chicago, will also supply this information in cold facts. You take no risk with the New England Mills Company. We are an institution of CERTIFIED RESPONSIBILITY and reputation.

THIS IS OUR GUARANTEE

We will not only say that the goods will be exactly as represented, but we guarantee them to be exactly as you expect them—you to be the sole judge.

If you are not satisfied with the merchandise, also the saving, we want you to return your purchase. Not only will we refund you your money, but we will reimburse you for all transportation charges that you have paid. This is our binding guarantee of absolute satisfaction.

QUALITY

Standard merchandise at low prices—and you to be the judge.

SERVICE

This department is in charge of expert men who have specialized in this line for years, who will send you the merchandise you order, the kind you expect.

STABILITY

Our guarantee is sound; it is backed by years of established business and by reference to any national bank in Chicago.

THE NEW ENGLAND MILLS CO
1219-1221 Michigan Ave.,
Dept. A. Chicago

The Little Salesman
A Dealers Catalog of
AUTOMOBILE AND TRUCK SUPPLIES
Prices Good Until January 10th, 1919
"Service Above All Is Our Policy"
The New England Mills Company
1219-21 Michigan Blvd., Chicago, U.S.A.
NEMCO

GET YOUR NAME ON OUR MAILING LIST!

SEND FOR OUR SPRING CATALOG TODAY!

WE SELL WHOLESALE ONLY! WE DO NOT SELL CONSUMERS!

THE ACCESSORY AND GARAGE JOURNAL

INDEX TO ADVERTISERS

Page
Adamson Mfg. Co........75
Advance Auto Accessories Corp........22
Air-Tight Steel Tank Co........80
American Bureau of Engineering, Inc........18
American Mfg. and Supply Co........74
Anti-Borax Compound Co........71
Auglaize Motor Car Co........70
Auto Body Exchange........67
Auto Parts Co........67
Automobile Devices Co........73

Barrett Motor Starter Mfg. Co., Inc........79
Bilodeau Ball Bearings Works........80
Bowser & Co., Inc., S. F........71
Brightman Auto Exchange........67
Brunner Mfg. Co........12
Bunting Brass & Bronze Co........73

Champion Shock Absorber Sales Co........67
Chicago Eye-Shield Co........75
Connecticut Auto Parts Co., Inc........66
Cooper Auto Supply Co........16
Corps Brothers........67
Culver Stearns Mfg. Co........70
Cuno Engineering Co........76
Curtis Pneumatic Machine Co........75

Detroit Magneto Exchange........66
Detroit Show Case Co........72
Dixon Crucible Co., Jos........72
Dyer Co., G. H........1

Faw, Inc., J. H........68
Fisk Rubber Co........65
Fitzgerald Mfg. Co........Cover
Franklin Mfg. Co........72

Gates Rubber Co........2-3
Globe Mfg. Co........72
Gray & Davis, Inc........Cover
Greb Co., The........70-76

Hartog, S. D........19
Heintz & Co., Jas. C........69
Hobart Bros........71-76
Hubbard, M. K., Spring Co........74

International Metal Polish Co........13

Jefferson Electric Mfg. Co........73
Jenkins Vulcan Spring Co........20

Kalamazoo Railway Supply Co........9
Kennedy Car Liner and Bag Co........73
King-Bull Mfg. Co........75

INDEX TO ADVERTISERS

(Continued)

Page

Laurel Motors Corp....17
Lawrence, Inc., Geo....71
Lawson, F. H., Co....74
Lehmann, Chas....67
Lozier Motor Co....66

Magneto Exchange and Repair Shop....67
Martin Mfg. Co....73
Merchant & Evans Co....77
Metal Hose and Tubing Co....69
Miller, Chas. E....80
Mitchell & Smith, Inc....75
Motor Specialties Co....14
Mueller & Co., R. S....75

New Departure Mfg. Co....75
New England Mills Co....78
New Era Spring and Specialty Co....71
New York Coil Co....76
Niehoff, Paul G., Co....20

Chio Smelting and Refining Co....71

Parker Motor Truck Co....66
Petterson Engineering Co....Cover
Piston Ring Co....8
Puritan Machine Co....66

Rich Mfg. Co....20
Rosen, A. W. & Co....77
Ross-Gould List and Letter Co....80

Savidge, A. S....20
Scaife, Wm. B. & Sons Co....75
Schrader's Son, Inc., A....69
Service Station Equipment Co., Inc....74
Shaler Co., C. A....11
Specialty Mfg. Co....66
Spring Leaf Lubricator Co....80
Standex Mfg. Corp....6
Stenman Electric Valve Grinder Co., Inc....80
Suffolk Mfg. Co., Inc....80

Taft-Pierce Co....80
Tire Construction Co....15

United Engine and Mfg. Co....10
United Motors Service, Inc....7
Universal Battery Co....5
Universal Mfg. and Sales Co....20

Vanderpool Co., Wm....77
Victor Mfg. and Gasket Co....68

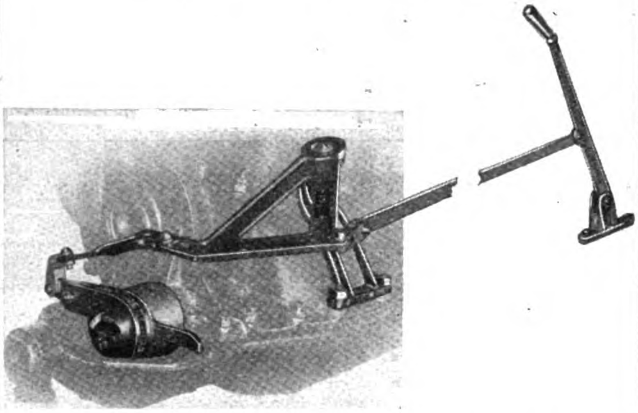
Walden-Worcester, Inc....Cover
Webber Mfg. Co....74
Weston Electrical Instrument Co....69
Wilkins & Hovey Co....66
Williams Foundry and Machine Co....20
Wilson, K. R....21
Workrite Mfg. Co....76

BARRETT SELF STARTER

For Ford Cars

PLEASURE, COMMERCIAL OR TRUCK

SOLD UNDER FIVE-YEAR GUARANTEE AS TO
SERVICE AND DURABILITY.
NOISELESS AND ECONOMICAL.



The Barrett Motor Starter is the only perfect mechanical starter devised; it has no chains, cables nor pulleys, but works on direct leverage that insures lasting qualities and perfect action. It is simple to attach, requiring no special ability nor mechanical knowledge.

It is operated from the seat by a hand lever placed alongside the emergency brake lever; except for this the whole starter is under the hood and out of sight.

Due to its direct leverage it eliminates 75% of the effort used in cranking.

In case of backfire it releases automatically, eliminating all danger; it will stand any amount of backfiring with no harm to the engine, starter, or operator.

Indorsed by prominent automobile engineers and mechanical experts as mechanically perfect in every respect and the best that has come under their observation.

With the Starter is supplied a Special Primer which vaporizes gas into cylinders of engine, thus insuring easy starting in zero weather.

List Price, Starter and Primer Complete, $25.00

Exclusive agents wanted in every city and county.

Write us at once for full particulars.

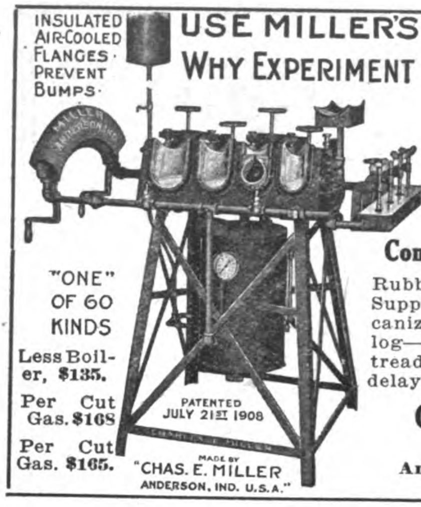
See our Exhibit at the Boston Show.

Barrett Motor Starter Mfg. Co., Inc.

1777 Broadway, New York.

INSULATED AIR-COOLED FLANGES PREVENT BUMPS

USE MILLER'S WHY EXPERIMENT


PATENTED JULY 21ST 1908
MADE BY "CHAS. E. MILLER ANDERSON, IND. U.S.A."

"ONE" OF 60 KINDS

Less Boiler, $135.
Per Cut Gas. $168
Per Cut Gas. $165.

Extra Ply Tires, Tubes, Vulcanizers

60 kinds.

6 kinds Wrapping Machines—Tire Building Stands—Air Pumps—Repair Stocks—Reliners—Steam Boilers.

Complete Tire Shop Outfits

Rubber Workers Tools and all Supplies—Boot and Shoe Vulcanizer—FREE 84-page Catalog—Four Cavity Ribbed Retreader. Write today. Don't delay.

CHAS. E. MILLER
1402 Meridian St.,
Anderson, Ind. U. S. A.

AIR TIGHT STEEL TANK CO.
PITTSBURGH, PA.
COPPER BRAZED AIR TANK

TANKS

The tightest, safest, strongest tank it is possible to construct by any known method. Process originated by us over twenty-five years ago.

We also make a special portable emergency tank for filling tires. Throw it in your emergency car and take it with you.

Gasoline and Oil Storage Tanks and Pumps

AIR-TIGHT STEEL TANK CO.
Main Office and Works
PITTSBURGH, PA.

Guaranteed Bearings

We Exchange Rebuilt Bearings for old or worn ones **BILODEAU** BALL BEARINGS WORKS

In Order to Obtain

EFFICIENCY and ECONOMY

in Bearings, send your worn bearings to us for repairs. We will rebuild them, make them as good and better than new at a fraction of the cost of new bearings.

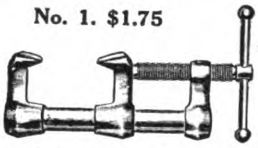
SATISFACTION GUARANTEED.

Garage and Repair Men cannot afford to miss this splendid service. **No delay.** We carry a big stock of Rebuilt Bearings to exchange for worn ones. Catalog sent and discounts quoted on application.

BILODEAU BALL BEARING WORKS
66 Stanhope Street, BOSTON, MASS.

Knowlson Spring Spreaders

No. 1. $1.75



Nickel-plated and polished.

100% EASIER RIDING.

SQUEAKING STOPPED.

Spring Breakages Eliminated.

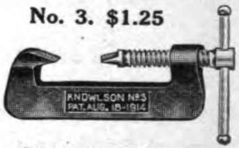
Use a Heavy Grease (not oil) for real results.

They Fit Any Spring. Easy to Operate. Both Drop Forged.

Both Guaranteed. Either or Both Delivered. Your Money Back if You Want It.

DON'T RUIN YOUR SPRINGS BY NEGLECTING THEM!

No. 3. $1.25



Gun metal yoke, screw and handle nickel.

At your Dealers, or Sent Direct.
SPRING LEAF LUBRICATOR CO., Dept. 4, Ann Arbor, Mich.

PROFIT ON YOUR LABOR

STENMAN ELECTRIC VALVE GRINDER

Repairers need it; Efficiency prompts its use; Scarcity of workers demand it.

In twenty minutes eight valves can be ground easily and accurately. A perfect job guaranteed. A novice can operate it. The old way by hand takes two hours or more with uncertain results. Saves the time and adds it all to profits.

Plugs in on any lamp socket. A or D current, 110 or 130 volts. Made for higher voltage when required.

State voltage desired when ordering.

Sold by dealers or direct.

The Stenman Electric Valve Grinder Co.
42 Southbridge Street, Worcester, Mass.

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 9000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable reference book free.* Write for it.

50¢ Saves Dollars on Your Purchases

Get several quotations on what you buy. It will save many dollars. For 50c (coin or stamps) we will send a few names of manufacturers, jobbers, dealers, or individuals who sell what you want to buy.

ROSS-GOULD Mailing Lists St. Louis

For sale by accessory and hardware dealers or by MAIL POST-PAID 50c EACH

RAIN-SHO CLEAR VIEW WINDSHIELD CLOTH

REG. U.S. PAT. OFF.

PREVENTS ACCIDENTS

Just RUB IT OVER THE GLASS and RAIN or SNOW cannot collect to obstruct the vision.

INSIST UPON THE "RED CLOTH"

Which is guaranteed to give continuous use for one year or money refunded. Made only by

SUFFOLK MANUFACTURING CO., INC., DEPT. D.
60 LONG WHARF BOSTON, MASS.

50% to 90% Saving

on Motor Bearing Fitting is Effected by means of

MARTELL ALIGNING REAMER

For new work or repair work on all makes of motors it insures:

Perfect alignment of all bearings. Correct position of Crankshaft with reference to centers of camshaft, driving gear and pinion. Correct size of bore of bearings, allowing for oil clearance. **Write for our Repair Reamer Booklet.**

TAFT-PEIRCE
Woonsocket, R.I., U.S.A.

New York, Woolworth Bldg., Detroit, Majestic Bldg. (2060)

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

DEMAND DYER

WHEN

You Want The Best Ford Replacement Parts

WE NOW MANUFACTURE

In Large Quantities

Pistons (regular and lightweight), Step-Cut Rings, Diagonal-Cut Rings, Wrist Pins, Wrist Pin Bushings, Rear Axle Shafts, Spindle Body Bolts, Spindle Arm Bolts, Stationary Cones and Adjustable Cones.

Guaranteed to satisfy most rigid requirements on material, sizes and workmanship.

Standard Weight

THE BEST ALWAYS

SIZES

STANDARD
.0025 oversize
.005 oversize
.010 oversize
.015 oversize
.025 oversize
.031 oversize
.033 oversize

Lightweight

FORD TYPE PISTONS

Car Owners and Dealers Want Dyer Pistons Because:

1. **All Measurements are Guaranteed Correct.**
2. **They are Accurately Fitted With the Best Step-Cut Rings.**
3. **They are of Uniform Weight—3¼ Pounds.**
4. **Pistons and Rings are Ground to Exact Size and Have a High Finish.**
5. **The Pins and Bushings are Made From the Best Stock Carefully Ground, Reamed and Fitted.**

NOTE: *We are again producing our well-known cast iron "Lightweight" piston which is One Pound lighter than the regular Ford giving less wear and vibration and more power and speed.*

THE G. H. DYER CO., Cambridge, Mass.

CHARLES C. GATES, E. M.

How You Can Sell More Tube Patches

If a tube patch is hard and crystalized, it won't stick—and the motorist who gets up against it with that kind of a patch will willingly go to a vulcanizer next time and pay many times the cost of a patch to have his tube fixed.

You have to sell your customer a good patch to hold his business—and it's easy to do it.

Picture a tube looking, feeling and acting like an ordinary tube patch. Your customer wouldn't have it and you wouldn't handle it. Isn't it logical that a tube patch should be made like a tube?

That's how Gates Vulco Patches are made—and it's never been done before.

Moreover, Gates Vulco Tube Patches are antimony cured and that's the way the best tubes on the market are made.

An antimony cured patch is more costly to manufacture, but there's no "bloom" to it. Bloom represents free sulphur, and that's what causes a patch to harden and crystalize.

Six months to a year later, an antimony cured patch is as good as the day it left the factory.

That's why Gates Vulco Tube Patches are antimony cured—"made like a tube." They stretch the same as the tube itself, and outlast it.

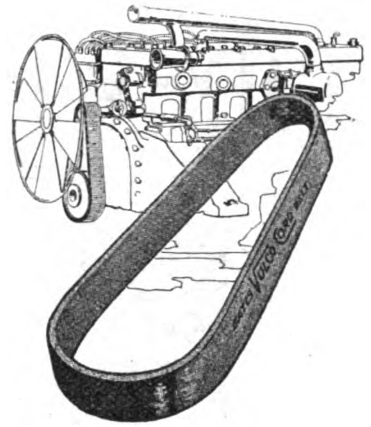
You can carry a full stock; and when you sell a Vulco Tube Patch you know you have made a satisfied customer.

That means more tube patch business, and tube patch profits assured.

GATES
VULCO
TUBE PATCH
Test This Sample

GATES
Rubber Company
DENVER

"World's Largest Makers of Fan-Belts"



The Standard Fan-Belt.

How Do You Pick a Fan-Belt?

Tested against seven other well-known makes of fan belts and proved to outwear them all. That's the kind of record you want back of the fan belt you buy—or sell.

The test was made independently by one of the largest motor manufacturers in America.

All the other belts went to pieces after from 72 to 100 hours' dynamometer test; but after 214 hours—more than twice as long—this belt was pronounced by the testing engineer to be practically as good as new.

Such a test as this proves beyond question that the Vulco process makes better fan belts. It shows you what's back of our positive guarantee that a Gates Vulco-Cord Belt will outwear all other belts whether of leather webbing or fabric.

A Gates Vulco-Cord Belt doesn't fit just one car. A Single "standardized" belt will fit 12 or 14 different cars and models. From a stock of only 8 or 9 standardized sizes you can fit every car in your territory that takes a flat belt—and Gates Vulco-Cord "V" Belt takes care of the rest.

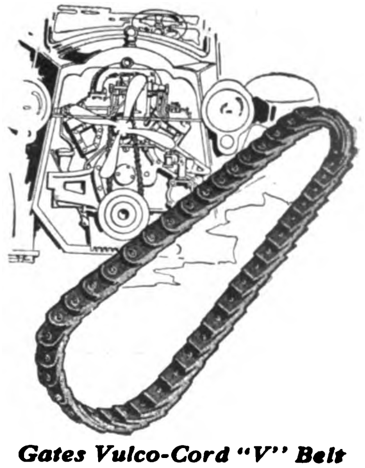
Together they mean a 100% fan belt business and double fan belt profits.

Four and a half million Gates Vulco-Cord Belts have already been sold for 1919.

Don't let your competitor reap all of this business. Get your share of these profits.

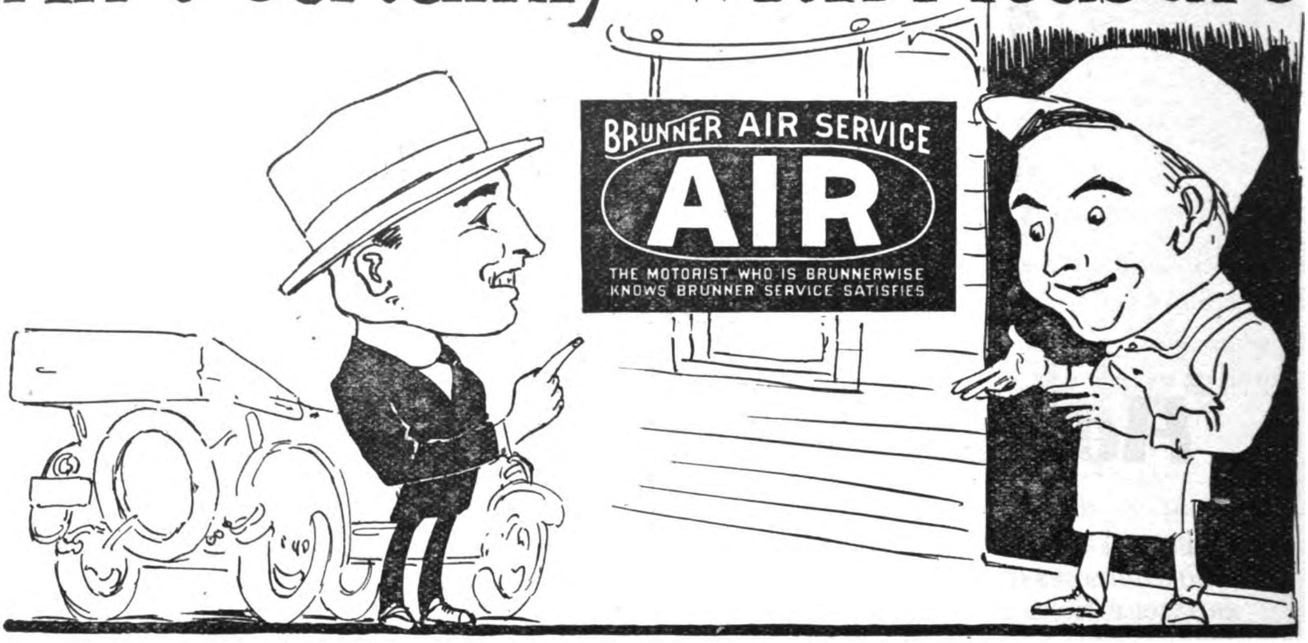
GATES
Rubber Company.
DENVER

"World's Largest Makers of Fan-Belts"



Gates Vulco-Cord "V" Belt

Air? Certainly-with Pleasure


BRUNNER AIR SERVICE
AIR
THE MOTORIST WHO IS BRUNNERWISE KNOWS BRUNNER SERVICE SATISFIES

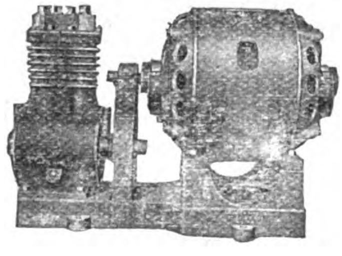
MR. GARAGEMAN: You've got this man for a regular customer because he knows you have a Brunner Air Compressor—he saw the sign.

It really takes very special service now-a-days to keep motorists close to you—if you don't think so, try poor service—the result will drive you out of business.

There has never been a time when the function of service and catering to motorists was developed to such a marked degree. It is the tendency of the times and anyone ambitious to succeed should recognize it.

Motorists always recognize the Brunner Air sign as a sure indication of thoroughly efficient and dependable air service wherever they see it.

You Will Buy a BRUNNER Air Compressor



No. 42 Two Cylinder Motor Driven Compressor.

Complete outfit self contained—mounted to substantial cast iron base. There is so little vibration that you need not fasten to floor if desirable, practically noiseless. Guaranteed pressure of 125 pounds to the square inch with standard motor (fitted for higher pressures upon order).

Materials and workmanship the best money can buy. Fully guaranteed.

—but, not so much from what we say about it as from what your friend around the corner says—that's perfectly natural—but remember this, it has got to be a good machine—a very good machine or he would not dare recommend it. Most of our sales are made through friends recommending Brunner Air Compressors.

Consider these points of merit in the Brunner Compressor:

No need for troublesome attachments to help the motor start against a full load.

Cylinders, Pistons and Rings accurately ground on the latest improved automatic grinding machinery.

Wrist Pins of case hardened steel, accurately ground.

Crankshafts drop forged steel, accurately ground—and larger than necessary. We've never had one break.

Every operation in the building of Brunner Compressors is mechanically precise in accordance with a perfect system of gauges.

They give the maximum of service with a minimum of care and upkeep cost.

With a Brunner you can give your customers clean air at all times with no delays or disappointments.

The additional cost, if any, for Brunner equipment is more than offset by the high efficiency of Brunner Compressors, which always give satisfaction. They are as efficient as it is possible to build an Air Compressor.

Write for catalog No. 15 and the name of the Brunner jobber covering your town.

BRUNNER MANUFACTURING CO., General Offices and Plant **Utica, N. Y.**

Cincinnati Branch, Cincinnati, Ohio

Automobile Repair Shops

Don't Lose This Opportunity!

There is no business today which has been so neglected and where there is such a bright future as that of regrinding worn or scored automobile cylinders.

There were 6,000,000 registered motor cars in the United States last year. A large percentage of these will require attention at some Auto Repair Shop this year.

The chances are ten to one that the cylinder will need regrinding. Cylinders wear oval shape from the constant pressure of the ring against the wall, or are scored by broken rings and loose wrist pin bushings. Unless these are ground round again, the result will be loss of power, excessive smoke and often a piston slap or knock. Also there will be an increased consumption of gasoline and oil.

All of these troubles are taken care of by regrinding on a Heald Style No. 60 Cylinder Grinding Machine. It was especially designed and built to take care of this class of work.

The repair shops that own Heald No. 60's doing cylinder regrinding are working day and night. It is a high grade class of work and commands high rates. Every live auto repair man should investigate this proposition at once by writing to

THE HEALD MACHINE COMPANY

WORCESTER, MASS.

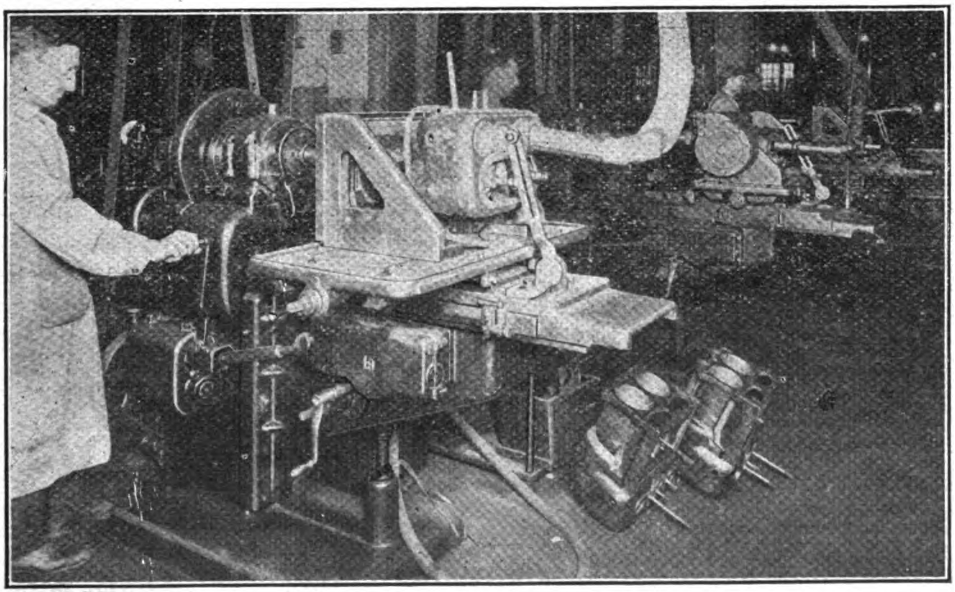


Photo taken at the International Motor Co., New York. They have three Heald Style No. 60 Grinders working night and day regrinding worn or scored cylinders.

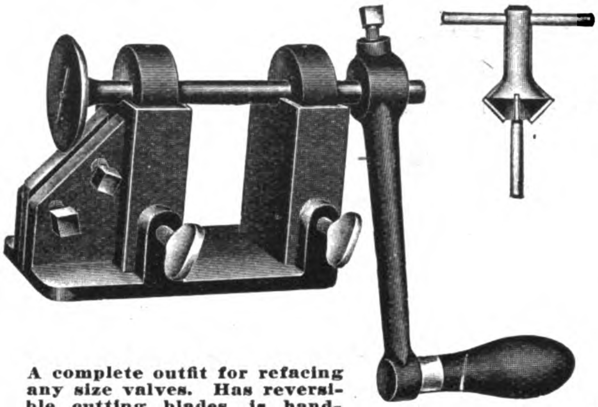
Branches:

New York, 839 Singer Bldg. Philadelphia, 1308 Commonwealth Bldg. Chicago, 24 South Jefferson St. Detroit, 811 Majestic Bldg. Cincinnati, 311 Provident Bank Bldg. Cleveland, 721 Engineers' Bldg. Western Agents: Eccles & Smith Co., San Francisco, Los Angeles and Portland. Salt Lake Hardware Co., Utah and Idaho.

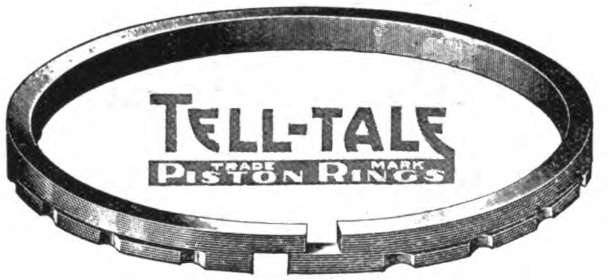
Foreign Agents: Alfred Herbert, Ltd., England. Societe Anonyme, Alfred Herbert, France and Switzerland. Societa Anonima Italiana, Alfred Herbert, Italy. F. W. Horne Co., Japan. Wihl. Sonesson & Co., Sweden, Denmark and Norway. The American Machinery Syndicate, Spain and Portugal.

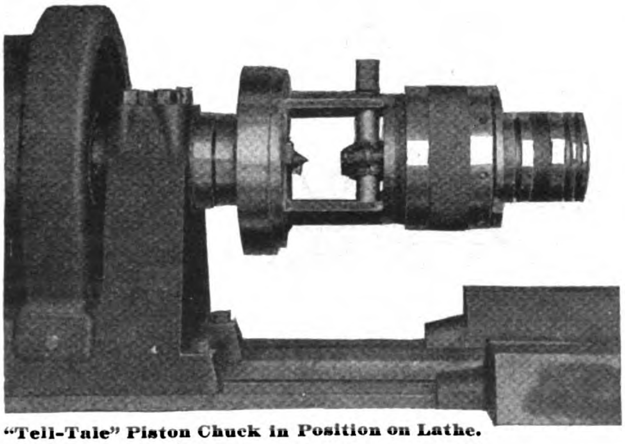
Why Limit Service OR Profit?

EQUIPMENT THAT SAVES TIME AND LABOR



A complete outfit for refacing any size valves. Has reversible cutting blades, is hand-operated, can be used on any work bench; a valve-seating tool that has replacable cutters and will take any size guide stem, suited for every type of standard type poppet valve.





"Tell-Tale" Piston Chuck in Position on Lathe.

JOBBERS AND DEALERS.

The Tell-Tale line is a record business getter. Why not specialize in 100% time and labor saving tools and equipment. It is easy to sell and every Tell-Tale sale represents a big profit to the dealer and satisfaction to the purchaser. They bring business because they are practical tools in any shop wherever auto repair work is done.
Send for catalogue showing our complete line. Trade discount sheets at request.

Will Make Big Money In Any Garage, Repair Shop *Or* Service Station

"TELL-TALE"

QUALITY PRODUCTS

THAT EARN BIG DIVIDENDS because they can be used constantly, that cost comparatively small prices, that afford highest efficiency for years, can be operated by any mechanic and cost practically nothing to maintain.

They are quality products because they are built from the best of materials, are adjustable to all work that may be offered, and all cutting parts can be renewed as desired at small cost.

They are guaranteed as to workmanship, material and utility, and are sold with a guarantee of the greatest satisfaction.

Tell-Tale Piston Rings are made in all standard sizes. They are one-piece, individually cast, step joint, oil cooled piston rings for water cooled or air cooled engines. Recommended by all first-class engineers and mechanics. Write for booklet, TELL-TALE FACTS about piston rings.

The "Tell-Tale" Piston Chuck will take all sizes of pistons without removing the connecting rods from the pistons. It is designed for trueing piston ring grooves, so that over width rings may be fitted. It can be used on any lathe, is easy to operate, simple in construction, cannot fail and will last for years. It will earn its cost in the first two jobs. It can also be used for turning and grooving rough cast pistons.

S. D. HARTOG
Manufacturing Co.

2636 LOCUST STREET, ST. LOUIS, MO.,
U. S. A.

DU PONT AMERICAN INDUSTRIES

DU PONT
PONTOKLENE
TRADE MARK
TAR and GREASE
REMOVER and POLISH
Shake well before using
PRICE
DU PONT CHEMICAL WORKS
120 BROADWAY — NEW YORK

Get Ready For The Tar Season

The demand for Pontoklene — ***the tar remover without a rival*** — will be greater in 1919 than ever before.

The resuming of state and national highway construction and maximum production of pleasure cars mean more tar and more cars than in any previous season.

In addition, our national advertising of Pontoklene in the motor publications and in national magazines will be greatly increased. Also, our free sampling offer through dealers will be continued in 1919.

Are you prepared to meet this increased demand?

We suggest that you order of your jobber or write our nearest office for our liberal dealers' proposition in your territory ***today.***

DU PONT CHEMICAL WORKS

Owned and operated by E. I. du Pont de Nemours & Co.

WILMINGTON, DELAWARE

BRANCH OFFICES:

San Francisco
Chronicle Building

Chicago
McCormick Bldg.

Columbus
4th and Long Sts.

New York
21 East 40th St.

Boston
Chauncey and Bedford Sts.

PRINCIPAL DU PONT PRODUCTS

For Information, address Advertising Division, Wilmington, Del.

Chemicals, Lacquers, Enamels, Pigments, Colors in Oil, Dyestuffs, Paints, Varnishes, Stains, Fillers, Pyroxylin Plastics, Leather Substitutes, Cleanable Collars and Cuffs, Explosives.

DU PONT

RECONSTRUCTED TIRES

Good for 2,500 to 5,000 Miles

Every motorist who sees his tire wearing away is in constant danger of a puncture or blow-out—will enthuse over our guarantee. Particularly so when it saves half the price of a new tire, this is a fact, and we guarantee it.

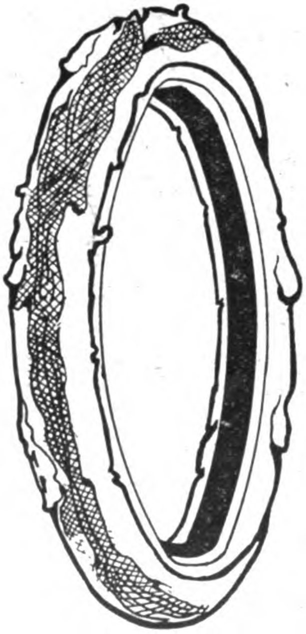
This is a new process, not the ordinary retreading method, but a process that builds a new tire on to the old carcass.—This is what we do:

1.—Turn out an old, worn-out, and useless tire into a new one.

2.—Prevent tread worn, rut worn tires from being utterly ruined.

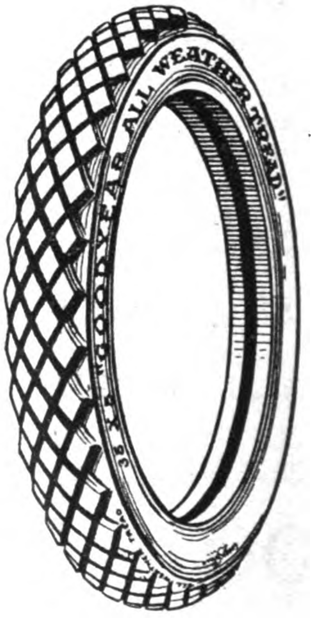
3.—Cover all weak or worn spots, cuts or bruises in the old tire, of which our Reconstructed Tread actually becomes a part, thus doubling the strength of the casing, and making blow-outs almost impossible.

Let Us Prove the Value of This Work



Here Are Our Prices For Rebuilding Your Used Tires

Size	Plain	Non-Skid
30x3	$9.00	$10.20
30x3½	10.20	11.25
32x3½	11.25	12.30
31x4	12.80	14.45
32x4	13.40	14.95
33x4	13.90	15.50
34x4	14.45	16.00
34x4½	17.10	19.75
35x4½	18.20	20.90
36x4½	19.25	22.45
35x5	21.40	24.05
37x5	23.50	26.20

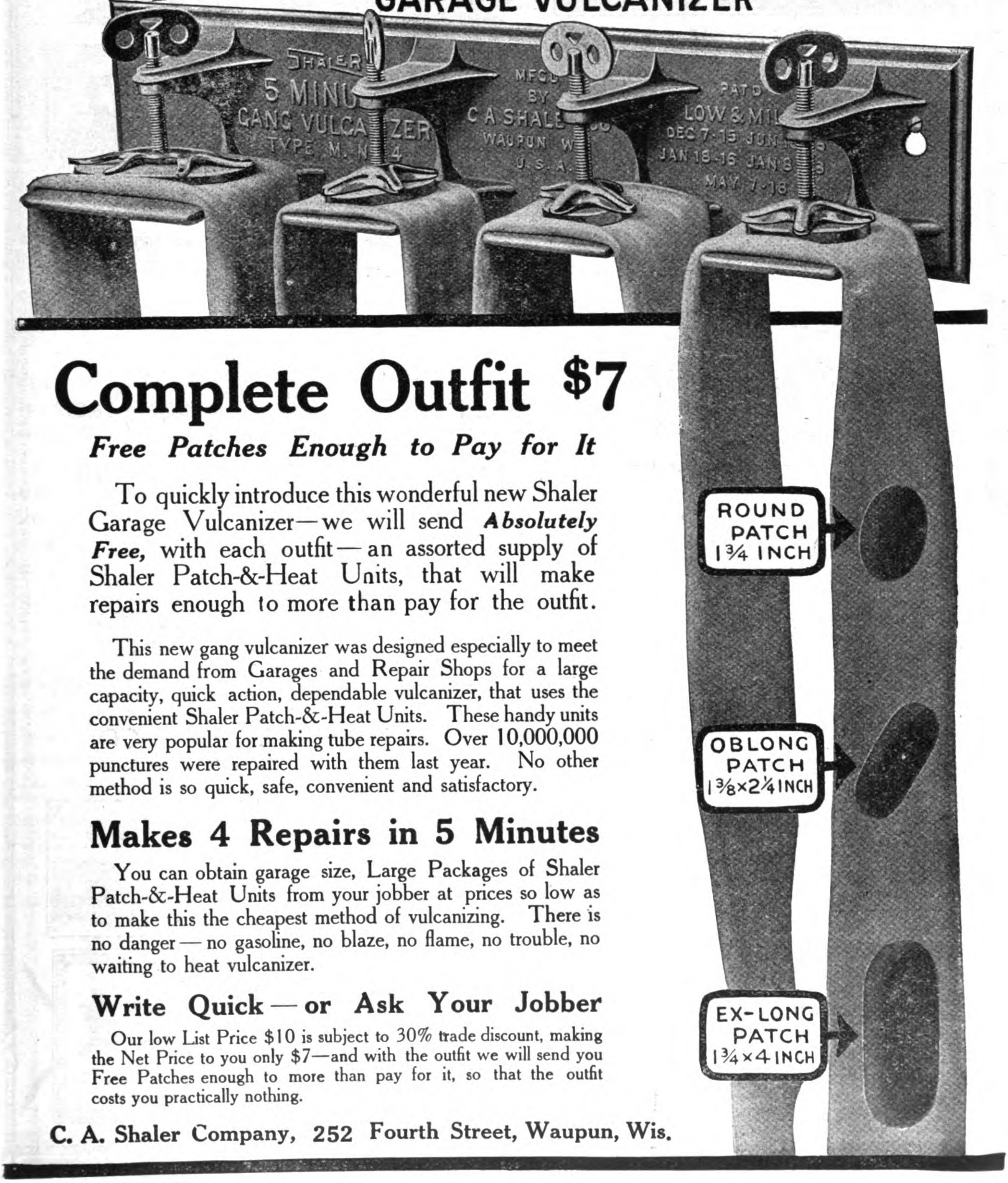

35 x 5 "GOODYEAR" ALL WEATHER TREAD

TIRE CONSTRUCTION CO.

129-131 Columbus Ave., Boston, Mass.

SHALER

5 MINUTE GARAGE VULCANIZER


SHALER
5 MINU
GANG VULCA ZER
TYPE M. N 4
MFCD
BY
C A SHALE
WAUPUN W
U. S. A.
PAT'D
LOW & MIL
DEC 7-15 JUN
JAN 18-16 JAN 8
MAY 7-18
ROUND PATCH 1¾ INCH
OBLONG PATCH 1⅜×2¼ INCH
EX-LONG PATCH 1¾×4 INCH

Complete Outfit $7

Free Patches Enough to Pay for It

To quickly introduce this wonderful new Shaler Garage Vulcanizer—we will send ***Absolutely Free,*** with each outfit—an assorted supply of Shaler Patch-&-Heat Units, that will make repairs enough to more than pay for the outfit.

This new gang vulcanizer was designed especially to meet the demand from Garages and Repair Shops for a large capacity, quick action, dependable vulcanizer, that uses the convenient Shaler Patch-&-Heat Units. These handy units are very popular for making tube repairs. Over 10,000,000 punctures were repaired with them last year. No other method is so quick, safe, convenient and satisfactory.

Makes 4 Repairs in 5 Minutes

You can obtain garage size, Large Packages of Shaler Patch-&-Heat Units from your jobber at prices so low as to make this the cheapest method of vulcanizing. There is no danger — no gasoline, no blaze, no flame, no trouble, no waiting to heat vulcanizer.

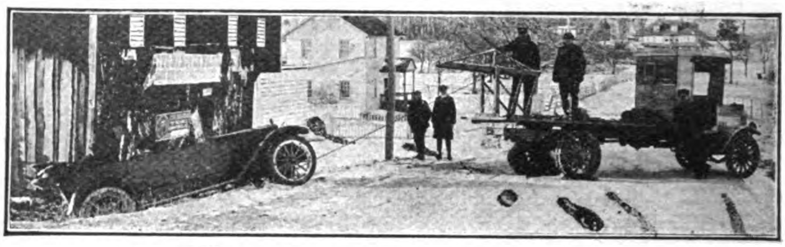
Write Quick — or Ask Your Jobber

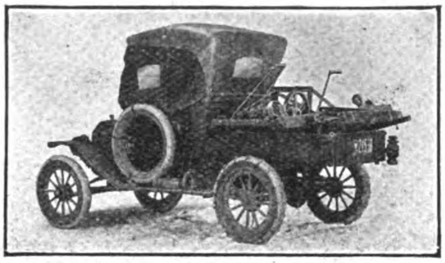
Our low List Price $10 is subject to 30% trade discount, making the Net Price to you only $7—and with the outfit we will send you Free Patches enough to more than pay for it, so that the outfit costs you practically nothing.

C. A. Shaler Company, 252 Fourth Street, Waupun, Wis.

MANLEY

GENERAL UTILITY GARAGE CRANES THE Manley WAY

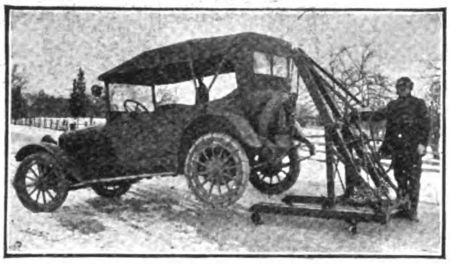




Floor capacity, 3000 lb. lift. Wrecking capacity 4000 lb. lift.

A WONDERFULLY EFFICIENT AND LABOR SAVING FACILITY.

The value of garage equipment is the profit it will earn
If you do work others cannot do—
If you do work quicker and with less labor—
If you do more satisfactory work
You get your price and you make profit that is worth while.



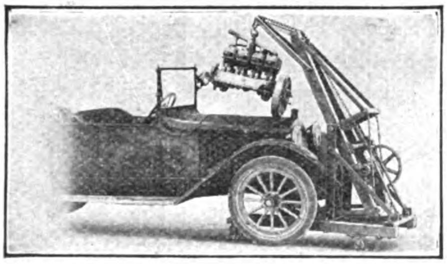
The Manley General Utility Garage Crane

IS A MANY PURPOSE TOOL

It is collapsible, but can be assembled, either for use in a garage or on a truck for wrecking work, and disassembled, in five minutes by two men.

It can be taken anywhere in a car and used as in the garage.

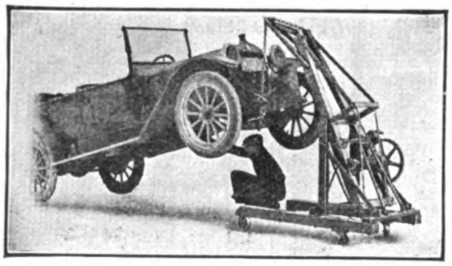
It has every utility of a portable floor crane and a truck-mounted crane, does not tie a truck exclusively to wrecking work and requires no storage space.

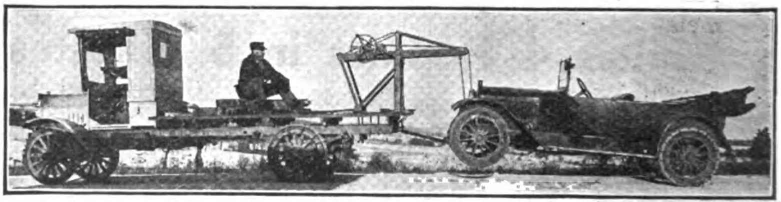


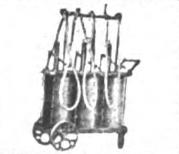
Specification: As a floor crane on base, length 66 in., width 36 in., height of base 9 in., height of lift 7 ft., weight 465 lbs. As a wrecking crane only: Overhead beam horizontal 42 in., length of beam overall 78 in., length of anchor piece and saddle foot 36 in., distance between bolt holes 24 in., weight 355 lbs.

Manley Cranes are productive the whole year through. The work done commands high prices. They earn you substantial profits, and profits are what you are in business for.

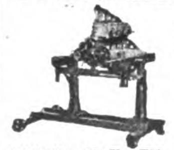
UNITED ENGINE & MANFG. CO.
HANOVER PENNSYLVANIA



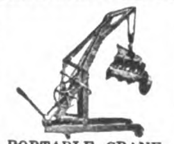




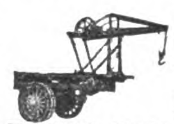
PORTABLE OIL SERVICE. 1, 2 or 3-tank units Self-measuring.



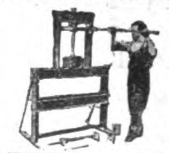
EVERY WAY ENGINE STAND Fits any suspension.



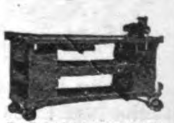
PORTABLE CRANE. Well balanced. Extraordinary lift and overhang.



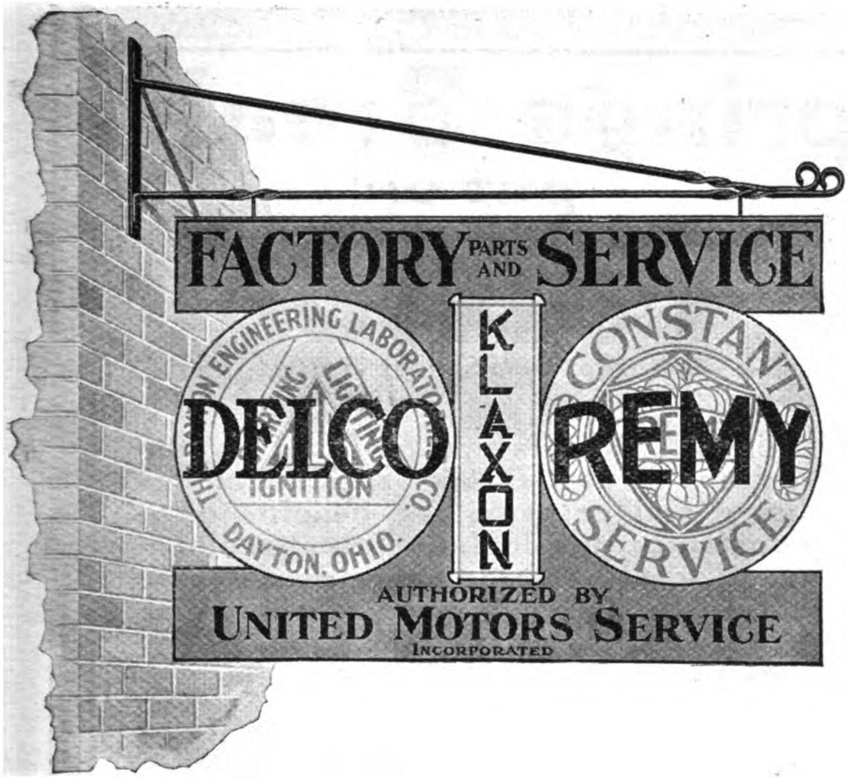
WRECKING CRANE for mounting on trucks



UNIVERSAL AUTO PRESS. Garage necessity. Fits all work.



PORTABLE BENCH Work right at the car. Easily handled.



By This Sign You Shall Know Them

Wherever you see *this sign*, you'll know it is *there* you can get expert service on Delco, Klaxon and Remy electrical equipments.

It is displayed only on buildings occupied by Authorized Distributors appointed by United Motors Service Incorporated, the Service Department of The Dayton Engineering Laboratories Co., Remy Electric Co. and the Klaxon Co.

These Distributors are appointed only after careful and thorough investigation into their qualifications as distributors of a genuine service.

Each is fully equipped with complete stocks, test apparatus and official factory records to assure your getting the correct part.

The following list of Distributors now authorized to display this sign is only the inauguration of a service organization that promises to be one of the most far reaching in the United States within the year.

Baltimore, Md.	The Reus Bros. Co.	150-54 Mt. Royal Ave.
Buffalo, N. Y.	Roth & Zillig	1063 Main Street.
Columbus, O.	W. E. Evans & Co.	206-208 E. Gay St.
Dallas, Texas	Texas Ignition and Starter Co.	700 S. Ervay St.
Des Moines, Ia.	Bernhard & Turner Auto Co.	506-12 West 7th St.
Detroit, Mich.	The Auto Electric & Service Co.	11-19 Selden Ave.
	Fauver-Cavanaugh Co., Inc.	1237-41 Woodward Ave.
Houston, Taxas	Houston Electrical Service Co Inc.,	Walker Ave. and Louisiana St.
Indianapolis, Ind.	H. T. Electric Co.	617 Capitol Ave.
Little Rock, Ark.	Arkansas Battery Co., Inc.	412-416 Center Ave.
Madison, Wis.	Automotive Electrical Service Co.	124-126 W. Main St.
Milwaukee, Wis.	Wisconsin Magneto Co.	528-530 Milwaukee St.
Oklahoma City, Okla.	Metropolitan Electric Service Co.	134-40 West Fifth St.
Omaha, Neb.	Exide Service Station	1918 Harney St.
Peoria, Ill.	Electrical Testing Co.	300-302 Knoxville Ave.
Philadelphia, Pa.	Auto Equipment & Service Co.	1421 N. Broad St.
Pittsburgh, Pa.	Penn Storage Battery Co.	5750 Baum Blvd
Springfield, Ill.	Chapin Electric Garage	407-11 Jackson St
St. Louis, Mo.	Automotive Electric Service Co. Inc.	2129-31 Locust St.
Toronto, Ont.	The Auto Electric Service Co., Ltd.	8-10 Elm St.
Utica, N. Y.	Steifvater Electric Co., Inc.	320-22 LaFayette St.

UNITED MOTORS SERVICE

INCORPORATED

Atlanta Boston Chicago Cleveland Denver New York
Kansas City Los Angeles Minneapolis San Francisco
Detroit: Branch and General Offices

MOTORS SERVICE
TRADE MARK

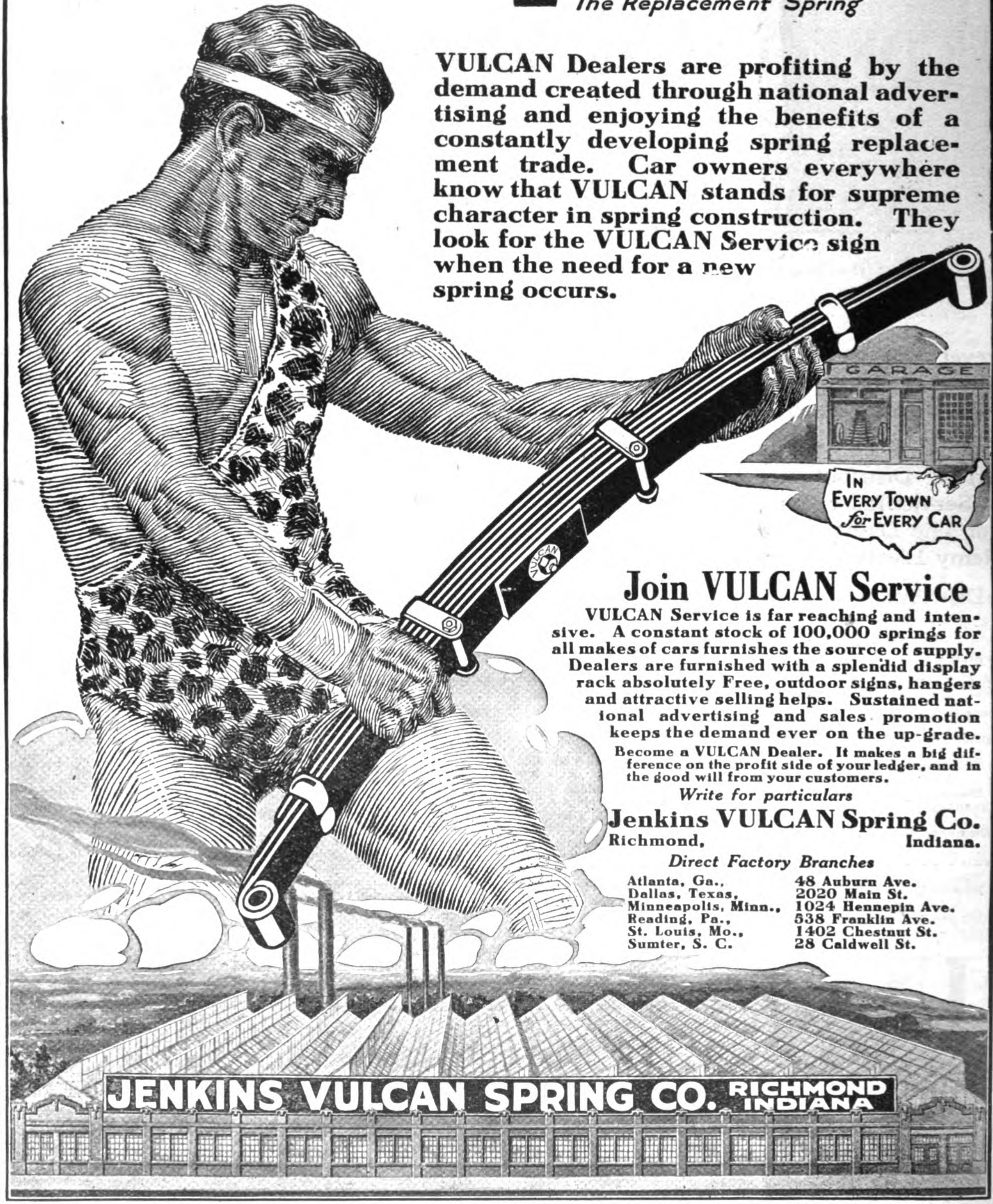
When Springs Break

put on

VULCAN QUALITY

The Replacement Spring

VULCAN Dealers are profiting by the demand created through national advertising and enjoying the benefits of a constantly developing spring replacement trade. Car owners everywhere know that VULCAN stands for supreme character in spring construction. They look for the VULCAN Service sign when the need for a new spring occurs.


GARAGE
IN EVERY TOWN *for* EVERY CAR
VULCAN
JENKINS VULCAN SPRING CO. RICHMOND INDIANA

Join VULCAN Service

VULCAN Service is far reaching and intensive. A constant stock of 100,000 springs for all makes of cars furnishes the source of supply. Dealers are furnished with a splendid display rack absolutely Free, outdoor signs, hangers and attractive selling helps. Sustained national advertising and sales promotion keeps the demand ever on the up-grade.

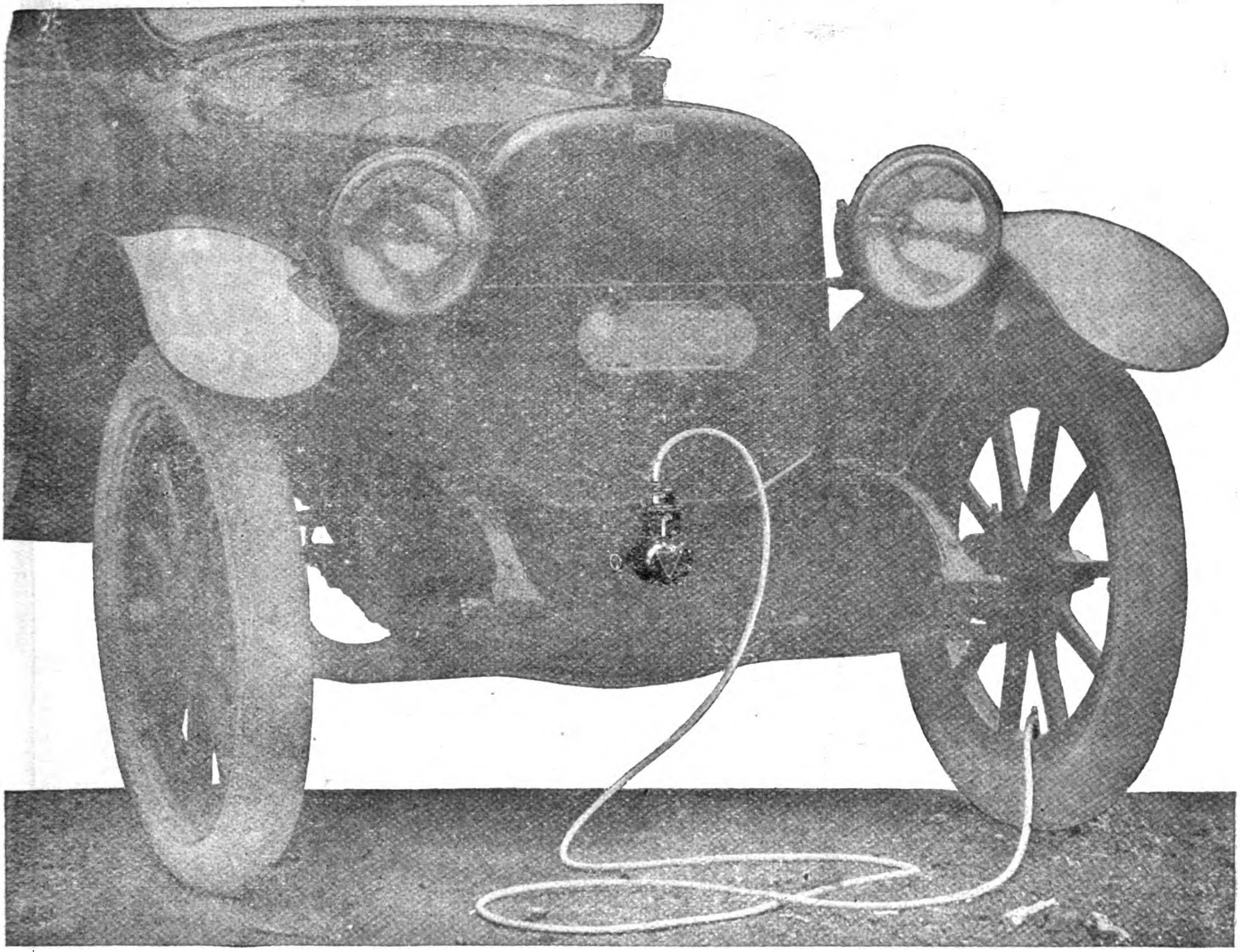
Become a VULCAN Dealer. It makes a big difference on the profit side of your ledger, and in the good will from your customers.

Write for particulars

Jenkins VULCAN Spring Co.
Richmond, Indiana.

Direct Factory Branches

Atlanta, Ga.,	48 Auburn Ave.
Dallas, Texas,	2020 Main St.
Minneapolis, Minn.,	1024 Hennepin Ave.
Reading, Pa.,	538 Franklin Ave.
St. Louis, Mo.,	1402 Chestnut St.
Sumter, S. C.	28 Caldwell St.



DETROIT
CRANK-SHAFT
TIRE-PUMP

To Accessory Dealers

Just a word—this pump is going to sell big—our advertising campaign is going to make it known to car owners in every nook and corner of the country. We've kept a substantial profit for you, and have built the pump just as good as we knew how. The pump and its price are right—Why not be first in your territory to display and sell it?

To Manufacturers

We are one of the largest builders of all styles of power-driven tire-pumps in the country, including transmission-pumps for many of the best-known high-powered, touring cars and trucks. Samples for Standard equipments, blue prints and quotations gladly supplied upon request.

Here it is—the mechanical tire-pump every motorist—every dealer—every factory, has wanted—a tire-pump attached at the right place—to the Crankshaft—where there is "power to burn" and no possible opportunity for oil-contamination.

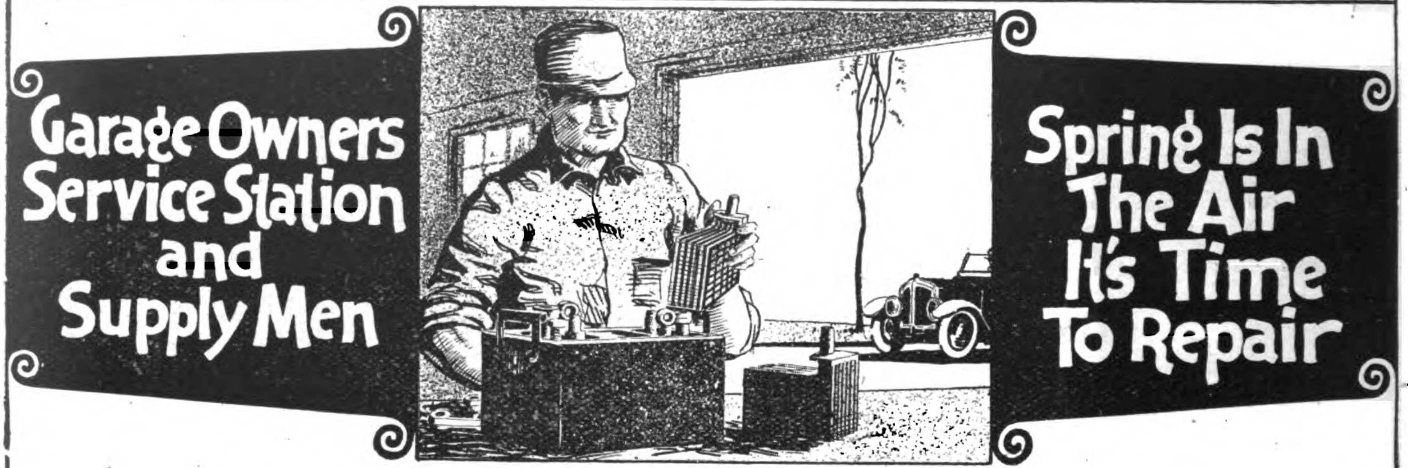
It only remains to tell you that it is the most sturdily built mechanically-driven tire-pump produced up-to-date. We are proud of our reputation as makers of motor accessories and we have taken infinite pains to produce in this pump a veritable engine—as rugged as though to be used for steam—a pump that will outlast the car.

Every car needs such a pump—how many times do you "take a chance" and run on a deflated tire or the rim, to get to an air station?

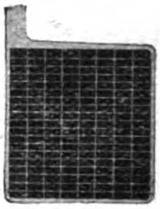
With a DETROIT CRANKSHAFT TIRE PUMP in your tool-box you've an air station with you with "pressure up."

The price, best of all, is remarkably low, considering the cost of raw materials—the high type of workmanship, and the splendid strength of the parts.

THE DETROIT ACCESSORIES CORPORATION, DETROIT, *Michigan*

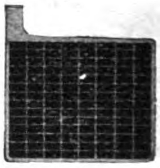


Use Universal Battery Service and Make Big Profits

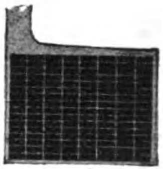


The spring drive is on! You will soon be rushed to the limit with repair work. Be ready to render prompt and efficient service. Look after your batteries, battery plates and parts—and do it now. Be prepared!

Universal Battery Service



means complete service—perfect service. No longer is it necessary for you to deal with a dozen different makers. You can now turn your battery needs over to the Universal Battery Company with the absolute assurance that you can depend on our service IN EVERY DETAIL.



Universal Battery "Parts Service" has solved your biggest problem—the prompt delivery of all parts needed for replacements and repairs, such as plates, terminals, connectors, separators, etc. We make and carry in stock complete batteries and also plates and parts for every battery for which there is a popular demand.

Let us show you how we can save you money, time and trouble. A postcard will bring our interesting and instructive catalogue to you promptly. Send for the 1919 catalogue.

UNIVERSAL BATTERY CO.

3420 S. LaSalle Street **Chicago, Ill.**

"Makers of Universal Starting and Lighting Batteries and originators of the sealed glass cell A complete battery for every popular make of car and a repair part for every standard make of battery. They are also manufacturers of vehicle plates and parts for both pleasure and commercial cars."

When Quality and Price are a Factor Victor Gaskets are Always Given Preference

Victor Gaskets are made to a standard that guarantees the longest possible service life and complete satisfaction.

In the list of regular users of Victor Gaskets are the names of practically all the leading producers of cars, trucks, tractors and engines.

Victor Gasket dependability is an asset of value to both maker and owner—that is why Victor Gaskets are used by almost all manufacturers and recommended by the trade.

There is just the Victor Gasket made for any requirement. The same personal attention is accorded large or small orders.

You are invited to submit your specifications.

Trade literature and discounts at request.

VICTOR MFG. & GASKET CO.,
•WORLDS LARGEST GASKET MANUFACTURERS•
TROY & 21st, STS., CHICAGO, U.S.A.

The Little Salesman

April Issue Now Ready! Get This!
CONFIDENTIAL Illustrated Price List of
AUTO ACCESSORIES

PRICES DOWN ON 765 ITEMS

You should know them—This information is FREE. Write for it today.

NEW ENGLAND MILLS CO.
1219-1221 Michigan Ave.
Dept. A. CHICAGO

SEND FOR IT NOW!

WE SELL WHOLESALE ONLY!

The Little Salesman
New England Mills Co.
Our Guarantee
Absolute satisfaction and you to be the sole judge
Even transportation charges paid if you are not satisfied

TRACTOR WORLD

Monthly 20c the Copy $2 the Year

A Tractor Journal
devoted to the
tractor industry and trade

Published by
The Automobile Journal Publishing Company
PAWTUCKET, RHODE ISLAND

The Navy Says:

It's a great life—if you don't weaken

The war is over. We and our allies have won the victory the good of the world demanded. Democracy, honor and justice were proved triumphant.

Some people seem to think we're all through.

We're not. It was, for us, essentially a war of preparation. Our dollars counted heavily and saved thousands of lives. The discovery that America *would* fight, fight with everything she possessed in men, materials and money, aided greatly in the collapse of Germany It took a great many dollars, but that is infinitely better than a great many lives.

Some of the war bills have yet to be paid, and we have not finished our job until the account is settled.

Don't weaken now.

Because it's cleaning up our job, because our country needs the money, because victory and peace are ours, because we are thankful the war meant to us for the most part dollars rather than lives—let us "carry on," finish the task and subscribe to the

LIBERTY V LOAN

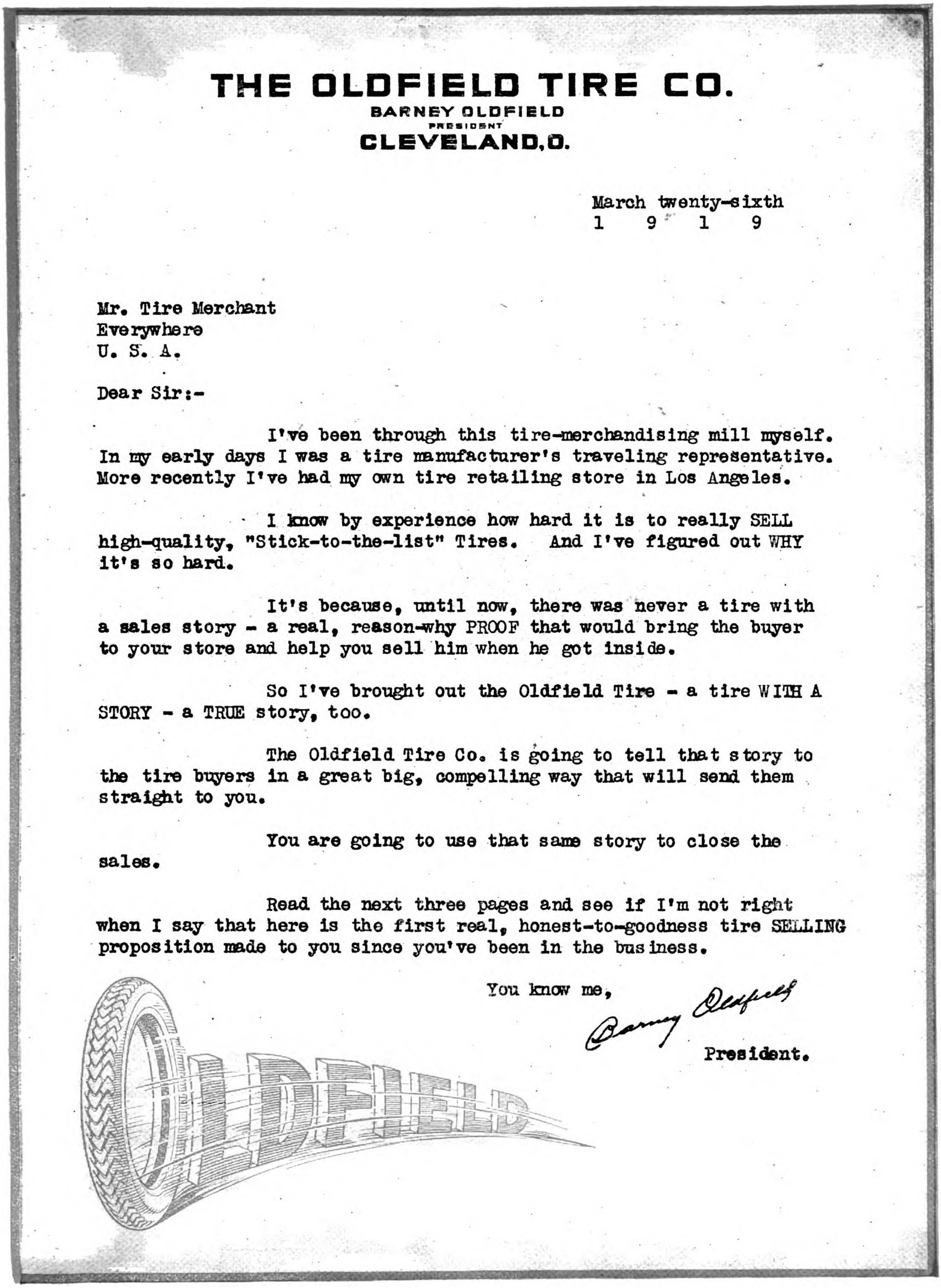
Victory Liberty Loan

The "Clean-up" Button

Space contributed by

THE ACCESSORY AND GARAGE JOURNAL.

Prepared by American Association of Advertising Agencies cooperating with United States Treasury Department



THE OLDFIELD TIRE CO.
BARNEY OLDFIELD
PRESIDENT
CLEVELAND, O.

March twenty-sixth
1 9 1 9

Mr. Tire Merchant
Everywhere
U. S. A.

Dear Sir:-

I've been through this tire-merchandising mill myself. In my early days I was a tire manufacturer's traveling representative. More recently I've had my own tire retailing store in Los Angeles.

I know by experience how hard it is to really SELL high-quality, "Stick-to-the-list" Tires. And I've figured out WHY it's so hard.

It's because, until now, there was never a tire with a sales story - a real, reason-why PROOF that would bring the buyer to your store and help you sell him when he got inside.

So I've brought out the Oldfield Tire - a tire WITH A STORY - a TRUE story, too.

The Oldfield Tire Co. is going to tell that story to the tire buyers in a great big, compelling way that will send them straight to you.

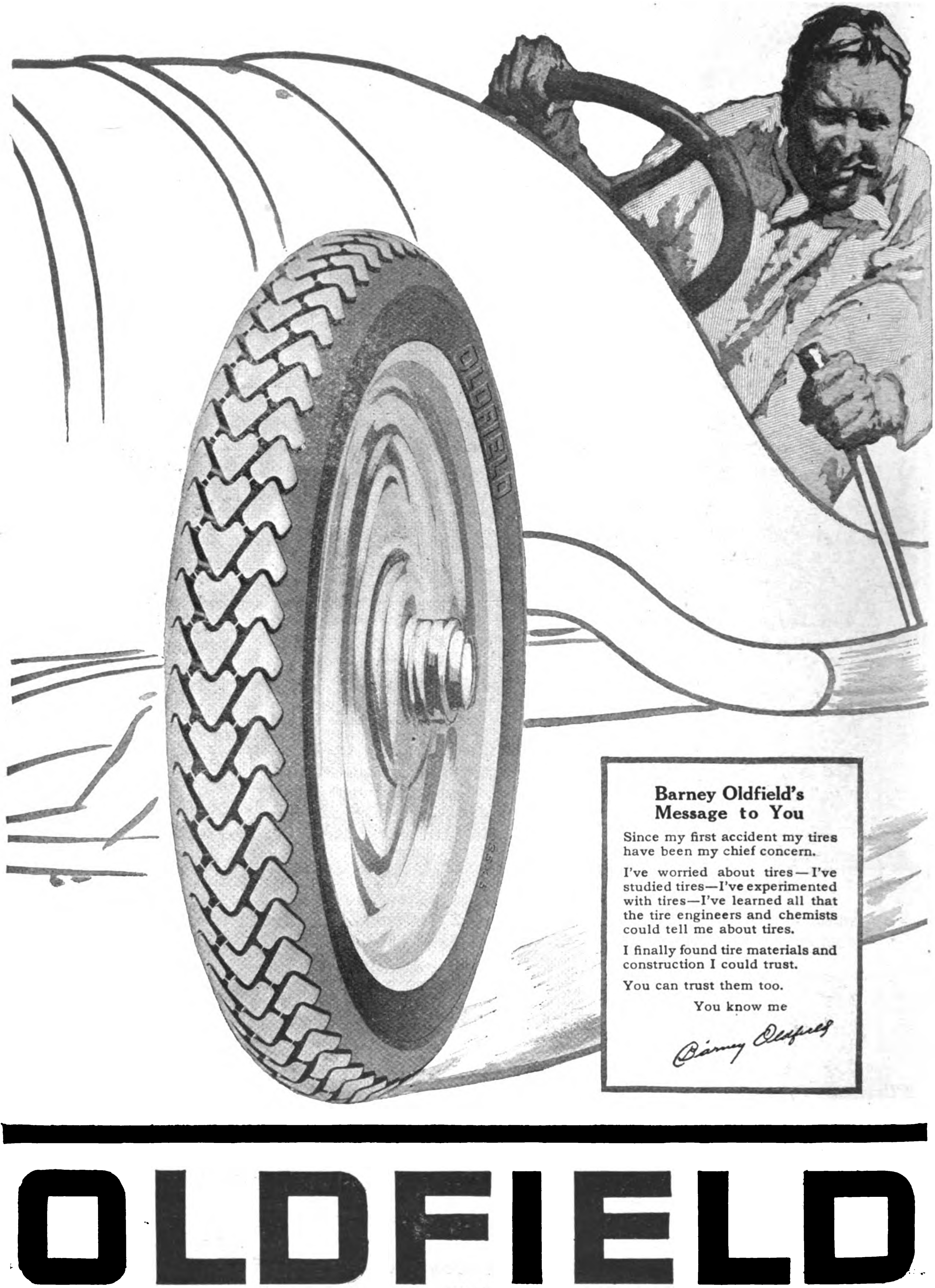
You are going to use that same story to close the sales.

Read the next three pages and see if I'm not right when I say that here is the first real, honest-to-goodness tire SELLING proposition made to you since you've been in the business.

You know me,

Barney Oldfield

President.



Barney Oldfield's Message to You

Since my first accident my tires have been my chief concern.

I've worried about tires—I've studied tires—I've experimented with tires—I've learned all that the tire engineers and chemists could tell me about tires.

I finally found tire materials and construction I could trust.

You can trust them too.

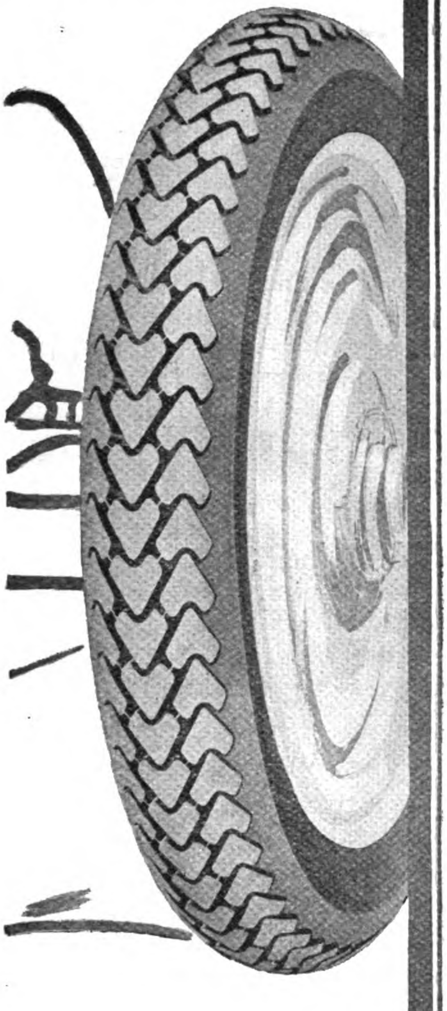
You know me

Barney Oldfield

OLDFIELD

Advance Proof

This double page advertisement will appear in the Saturday Evening Post of April 5, and the Literary Digest of March 29. In page form it will also appear in a carefully selected list of the leading monthly magazines.



"The Most Trustworthy Tires Built"

Your motor car is exactly as good as its tires.

It can't be better, for—without tires—it will not carry you a single mile.

Doubtful tires make even the best car a doubtful reliance. You must be able to trust your tires day or night, storm or sunshine, city street or country road.

Service, comfort, even your own safety and that of those who ride with you, depend on trustworthy tires.

OLDFIELD TIRES

are tires founded on the observation, experience and study of Barney Oldfield, the greatest tire user in the world—a man who has, for nearly 20 years earned his living on tires—trusted his life to them—on track and speedway—on roads of every state, in every kind of weather and going.

Barney Oldfield designs and builds these tires for you, and recommends them as "The most trustworthy tires built."

A strong and resourceful company has been formed and financed to supply your Oldfield Tires. These tires are already being delivered to distributors. You will soon see them on sale everywhere—in every size, fabric or cord, plain or anti-skid.

But you will find them in only one quality—the highest—the quality Barney Oldfield is willing to recommend to you.

THE OLDFIELD TIRE CO.
BARNEY OLDFIELD
PRESIDENT
CLEVELAND. O.

TIRES

Tire Merchants:—

This advertisement marks the beginning of a merchandising campaign that will place Oldfield Tires before the car owners of America EVERY MONTH.

This campaign will SELL TIRES for some tire merchant in your territory.

Read the details on the page that follows. Then turn back and again read Mr Oldfield's letter to you.

Over Five Million Advertisements A Month!

Here is the Oldfield Plan of Helping You Sell Tires to Your Whole Territory—Big Mediums and Big Space to Tell a Big Story

UNLIKE any similar sales campaign in history, The Oldfield Tire Company gets away to a flying start.

No preparatory steps are needed to introduce its name or its product nationally or in your territory. Tire buyers know Barney Oldfield, respect his recommendation, and accept Oldfield Tires without hesitation because of their admiration for the "Master Driver," and their confidence in his judgment and experience.

Yet President Oldfield's personal popularity—an asset worth many millions of dollars—is only the beginning in the merchandising plans of this company.

Our Announcement

The two preceding pages carry an advance copy of the double-page announcement we are making to the tire buyers of the world through the two greatest mediums in the country.

This announcement will be followed by a steady succession of large-space display in these and other picked publications at the rate of more than FIVE MILLION ADVERTISEMENTS A MONTH.

Mr. Oldfield, in his original way, has always been a successful merchandiser. The men who have financed this company are veteran merchandisers, who have a habit of doing big things in a big way. Efficiently, carefully, systematically, the story of Oldfield Tires will be placed in the hands of your customers. Soon they will be the most talked-of tires on the market. And the tire merchant who sells them will be in a position of prestige and distinction.

Our Tire

Best of all, the tires themselves are every bit as good as the merchandising plan. Remember, Oldfield Tires are not new tires at all. They are a development of many years of study and test by the greatest tire user in the world.

Every Oldfield Tire is two-cured and is built up by a wrapped-tread process; the tread compound is tempered with zinc—Barney Oldfiield's own specifications.

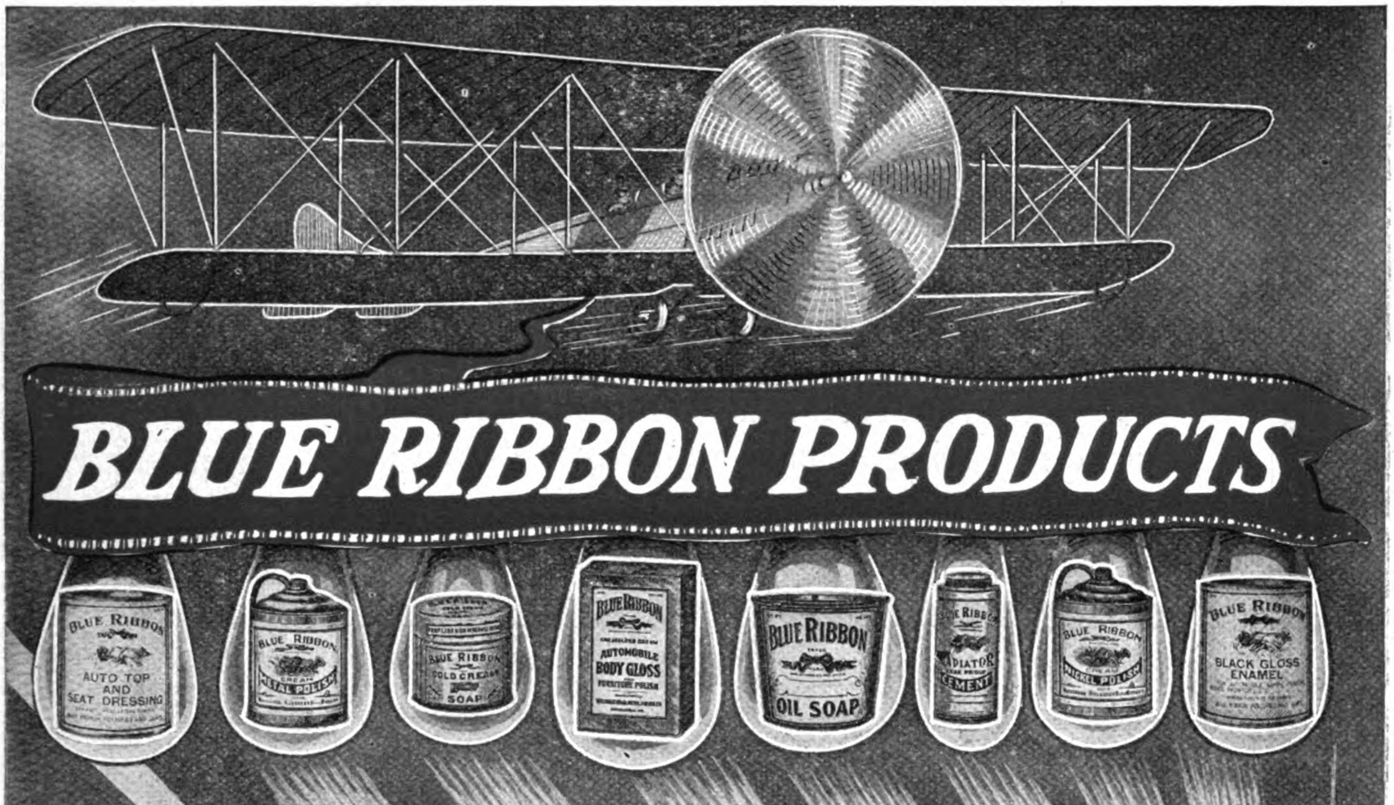
We are now in full swing of production and are making deliveries in shipments up to carload lots.

Send Today for an Application Blank
Your Territory May Still be Open

THE OLDFIELD TIRE CO.
BARNEY OLDFIELD
PRESIDENT
CLEVELAND, O.

OLDFIELD TIRES

"The Most Trustworthy Tires Built"


BLUE RIBBON PRODUCTS
BLUE RIBBON AUTO TOP AND SEAT DRESSING
BLUE RIBBON CREAM METAL POLISH
BLUE RIBBON COLD CREAM SOAP
BLUE RIBBON AUTOMOBILE BODY GLOSS FURNITURE POLISH
BLUE RIBBON OIL SOAP
BLUE RIBBON RADIATOR CEMENT
BLUE RIBBON NICKEL POLISH
BLUE RIBBON BLACK GLOSS ENAMEL

Are a Standard Line

Jobbers and Dealers stock the full Blue Ribbon line as they do all other tried, proven and constantly selling goods.

Blue Ribbon products are made by specialists who depend wholly on the quality and service giving satisfaction afforded by lines bearing their trade mark.

There can be no experimentation at the expense of the consumer, dealer or jobber. All Blue Ribbon Specialties must be as good as they are practical in every day use as it is possible to make them.

A nation wide trade, enormous expenditures devoted to development and promotion work as well as the maintenance and operation of the largest plant of the kind in America is too great a stake to gamble against quality.

Blue Ribbon Products today stand supreme. They are passed over the counters backed by an unqualified guarantee on the part of the trade that can leave no doubt as to their merits.

That is why Blue Ribbon Products are a standard line and will always continue to be so.

That is why all jobbers and dealers sell and list them in their catalogues.

Above all else that is why the consumer buys Blue Ribbon trade marked products. Blue Ribbon Products cost no more than others, yet represent the most profitable line that can be placed by the jobber or dealer.

If the **BLUE RIBBON** trade mark is to be seen on your shelves or counter you have a silent salesman in your store that is always working, always earning.

All Blue Ribbon Specialties are sold in quantities to meet any requirement.

The full line affords a complete line and it pays to specialize in known quality goods.

Blue Ribbon Specialties Include:

Blue Ribbon Cold Cream Hand Soap
Contains no pumice or sand.

Blue Ribbon Leak Proof Cement
A permanent radiator cement.

Blue Ribbon Nickel Polish
For nickel parts and trimmings.

Blue Ribbon Auto Body Gloss
For automobile or furniture.

Blue Ribbon Lightning Carbon Remover
Quick and positive in action.

Blue Ribbon Black Enamel
For lamps, hoods, radiators and metal parts

Blue Ribbon Auto Top and Seat Dressing
A waterproof dressing that restores tops and seats.

Blue Ribbon Hand-On Patch
A self-vulcanizing patch for shoes and tubes that never fails.

Blue Ribbon Cream Metal Polish
For any metal. An easy, quick working, satisfactory polish.

Blue Ribbon Oil Soap
A pure vegetable oil soap for any purpose. All quality and efficient.

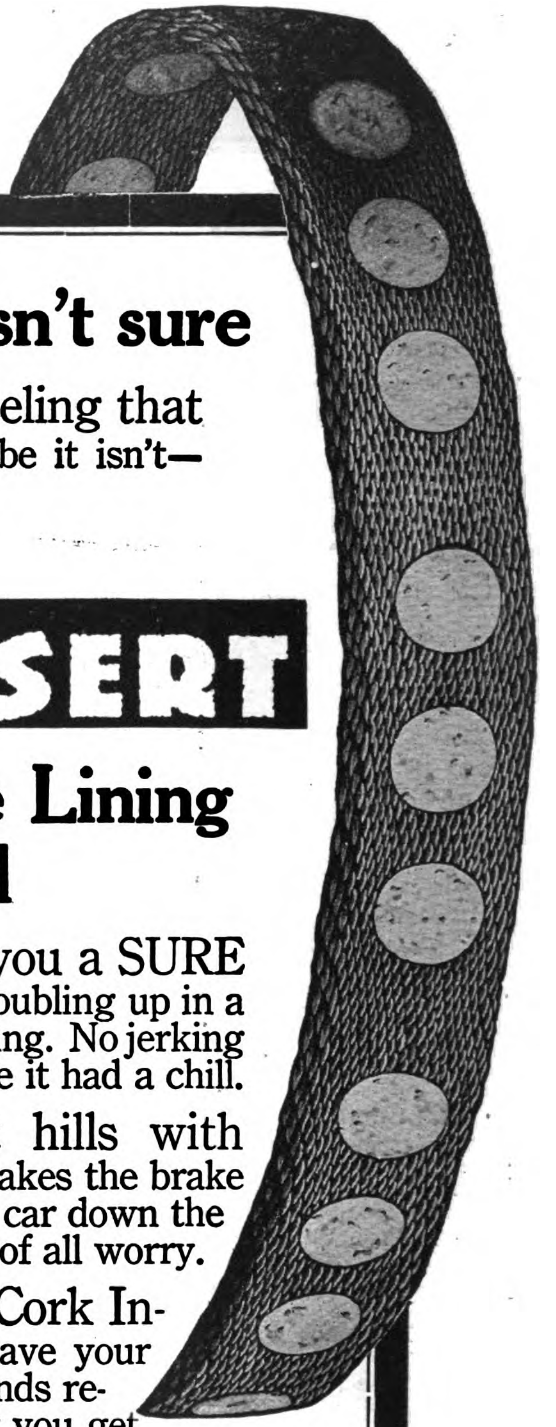
This is the time to consider your winter and spring requirements

Jobbers and Dealers: Prices and discounts at request.

BLUE RIBBON LIQUID RADIATOR CEMENT
BLUE RIBBON Hold on Patch
BLUE RIBBON LIGHTNING CARBON REMOVER

International Metal Polish Co.

INDIANAPOLIS, INDIANA.



If your Ford brake isn't sure

—if you have that anxious feeling that
maybe it's going to hold and maybe it isn't—

You need

CORK ADVANCE INSERT

Transmission-Brake Lining on your Ford

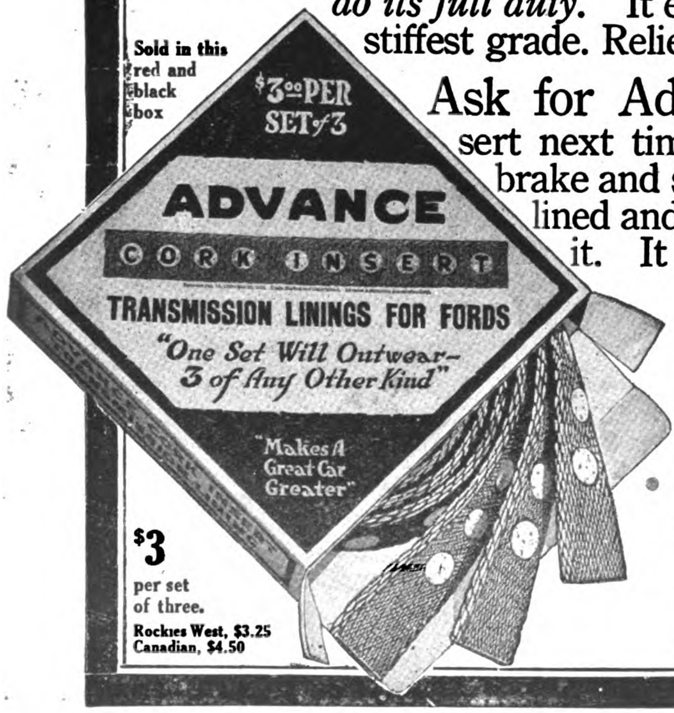
Advance Cork Insert will give you a SURE brake and a SMOOTH brake. No doubling up in a sudden stop that sets your head swimming. No jerking or chattering while the car shakes like it had a chill.

You won't fear the steepest hills with Advance Cork Insert on the job. It makes the brake *do its full duty*. It eases the car down the stiffest grade. Relieves you of all worry.

Ask for Advance Cork Insert next time you have your brake and speed bands relined and see that you get it. It outwears several sets of ordinary linings, and is the cheapest in the long run.

Every garage and repairman has Cork Insert or can easily get it; every wholesale house carries it. You can always tell Advance Cork Insert by its name on the distinctive red and black box.

Sold in this
red and
black
box


$3.00 PER SET of 3
ADVANCE
CORK INSERT
TRANSMISSION LININGS FOR FORDS
"One Set Will Outwear—3 of Any Other Kind"
"Makes A Great Car Greater"

$3
per set
of three.
Rockies West, $3.25
Canadian, $4.50

Advance Automobile Accessories
Corporation
Dept. C-3, 56 E. Randolph Street, Chicago

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., MARCH, 1919 No. 11

DEALERS TO FORTIFY THEMSELVES BY SOLIDLY ESTABLISHING AGENCIES AGAINST COMING COMPETITION

Unprecedented Optimism Holds Sway as Salesmen Have Pleasant Occupation of Taking Orders, But Warning Is Sounded of Keen Trade Battle That Is Bound to Come—Shows Throughout Country Most Successful Ever Held and Indicate Nation Is Entering Upon Era of Great Prosperity as Reconstruction Progress Is Made.

GREAT optimism in the automobile industry and trade is only a logical outcome of the success that has marked every show. Los Angeles started the ball rolling, Chicago and New York followed suit, and Boston has just added another triumph. In nearly every important city, from coast to coast, and in the North and in the South, this year's shows proved to be the biggest and most successful ever held.

The manufacturers had decided as a war measure before the signing of the armistice to forego national exhibitions this year. But they are now glad that the dealers went ahead and held the shows, as they realize it would have been a big mistake if these had been abandoned.

The shows brought forth ample evidence that this great nation is entering upon a period of unprecedented prosperity, despite the fact that it is yet, to a certain degree, working under war conditions. These conditions, however, do not seem to affect business in a detrimental manner; rather the change from the anxiety of war to coming peace has proven a wonderful stimulus in the reconstruction of business in general and the motor industry in particular.

When the actual conditions of the shows of a year ago are compared to those at the exhibits this year, one cannot help but marvel at the change—a change that presages increased greatness in the very near future. A year ago every one seemed to be living under a cloud, under a spirit of depression—a spirit that was more or less depressive as one attempted to look through the war clouds and wonder what was in store.

There Is Enthusiasm of Motorists.

This year these clouds have rolled away. The worry and, one might say, anxiety have passed away. The future looks bright and cheerful. Many of the boys have returned, others are coming every day, and, instead of sorrow, gladness pervades the atmosphere, and the public seems to be anxious to give vent to its pent up spirits and once again enjoy itself as it did during the pre-war period.

> **BIG EXPORT TRADE.**
>
> Never before has foreign trade opportunity knocked harder at the doors of American manufacturers. Makers of automotive equipment, alive to possibilities, are preparing to take advantage of them. The government has a billion dollar fund to aid exporters.

This certainly was emphasized again and again during the numerous shows that have been held. Sales came easier, people were less captious and the demand for immediate delivery of motor cars was so great that many dealers were sold out so that they could make no more deliveries for weeks, in some instances months.

Prosperity is in sight and the dealers are ready to take advantage of the new era. During the war the men handling motor cars had a hard row to hoe. People were not buying so readily. Others who ordinarily buy new ones held on to their old machines.

The ban placed by the government on production prevented getting many cars to sell. The war taxes piled up. Expert men were called into service. It was one thing after another to fill organizations with gloom.

Yet it seems now as if it really was all for the best. Because of the scarcity of production there will be no great difficulty in selling cars this year. Also the war put into the market thousands of prospective motorists, who made money enough to be able to afford a car this year.

Nothing Now Deters Buying.

They held off last year because of the gasoline shortage bogy and other scares. So they will buy now. Those who used their old cars, particularly through the open winter, did as much riding as they would do ordinarily during the coming summer. Therefore, instead of figuring on a new car next year they will order this season.

The open winter, which kept so many cars in use, meant wearing out the tires, and the call for new shoes is increasing every day. And accessories are needed, too.

The man who is figuring on a general drop in prices during July and August is going to find himself mistaken. All the factories are now doing their best to get back to production, but they will not attain their object for months, and in the meanwhile the supply will not keep up with the demand.

In Boston some of the dealers in new cars are now being offered contracts by used car dealers, who wish to take over every car in trade. Is it any wonder that the motor car dealers are smiling?

No Prospect of Lower Prices.

Manufacturers and their representatives agree that for the present car prices will stand practically where they are. Production costs cannot be lowered to permit material reductions for this season. Some of the manufacturers have guaranteed their prices until summer; others have stated with emphasis their belief that there will be no change during the calendar year.

The consensus of opinion is that there will come a revision when the cars for the 1920 season are ready to be exhibited. The manufacturers realize that in all probability there will be very keen competition about that time, a competition that may result in putting the industry into fewer hands than at present.

The dealers, therefore, are being cautioned by the factory men not to bother too much about the problems of the present season, but to fortify themselves by solidly establishing their agencies against the time when they will have to go out and sell their goods, as distinguished from the existing pleasant occupation of taking orders.

Owners Look for Something Better.

The Boston and other shows clearly demonstrated that the motoring public is always looking for something better. The man who starts with a cheap car buys another a little larger, more completely equipped, more powerful and comfortable, when he makes a change. And when he changes a second time it is to a car still better.

It had been predicted that the time would come when the motor vehicle would be reduced solely and simply to a means of transportation. The motor car is unquestionably looked upon by the majority of its users as a utility rather than a luxury, but the tendency in the purchase of cars is by no means the selection of the car that will afford transportation at the lowest cost.

This inclination on the part of the public is emphasized in the high priced cars. Buyers used to be content with what the factory offered as stock models; now they are not. Many of the exhibits at the New York and Boston shows had custom built bodies which represented the extreme in luxury, comfort and individuality.

Closer Attention to Body Work.

A curious change was noticed in the attitude of the motoring public, that was especially evident at the Boston show, in the decreased importance that is given to the power plant and the chassis in general. Fewer stripped chassis were exhibited at this show than ever before. Although exhibits of chassis attract crowds of people, the rank and file of motor car buyers seem to have reached the point where they are content to accept the designs of chassis upon which leading makers have staked their reputations and to govern their choice largely by considerations which pertain principally to the body work.

Exhibitors said that they only rarely had to argue the relative merits of the four, six, eight or 12-cylinder engine, double or single ignition, and position of the transmission and the arrangement of gears, the type of clutch, methods of cooling, the operation of valves and the construction of cylinders and other mechanical features, which used to be stock trade talk.

Shows Proved Trade Conditions.

The shows have done a great deal to clarify the trade situation, for there has been an intermingling of manufacturers, dealers and buyers by which it has been made possible to eliminate much speculation as to the supply and demand, and to get down to the real facts of the existing conditions in the industry and future plans.

Take the Boston show, for instance. The Boston dealers went into the show confident that New England people would buy a large number of vehicles this season. Their only doubt on this score was whether the heavy purchasing that has been going on since the armistice was signed would not lighten materially the usual spring rush. They came out of the show convinced that the spring rush was in progress and would be large.

A great many cars were sold during the show and many prospects were booked by the dealers. But of fully as great importance as the immediate business developed is the future outlook, and upon this the Boston show, as well as the other shows, has had a most gratifying enlightening effect.

Dealers Now Have Confidence.

The dealers who were present from every part of the territory, are enthusiastic over the opportunity to sell cars that they see for a long time to come. They express confidence in an increasing market, not alone for the whole of this year, but for years in the future. They see no possibility of anything that looks like a saturation point in the motor car market, whether it is for large or small cars.

One reason for this is that there are so many users of cars in New England that the annual replacement requirements mean the taking of a very large number of vehicles every year. Another is that there is constantly entering the ranks of motorists a new group of people. These groups will grow as the industry gets back into normal condition and prices become lower. This condition is true not only of New England, but throughout the country in general.

Demand Exceeds the Supply.

It was a curious feature of the gatherings of the different New England sales organizations held in connection with the show that the factory men in addressing the dealers, did not urge them to get out and hustle for orders, which is the customary theme of such speeches. On the contrary, they counseled patience.

They said that no dealer in the United States was going to get as many cars as he wants this spring, as it is absolutely impossible for the manufacturer to produce as many cars as have been sold. Everywhere, in the West, the South, the Middle West and in New England, there is an overwhelming demand for cars, which would take all that the factories could build under normal conditions, and which simply swamp the production facilities under the abnormal conditions of the sudden shift from war work to peace.

The factory men told the dealers that in two, three or four months there would be something like normal output, and meantime the limited production was being distributed equitably throughout the country. Meantime the dealers must do their best to take care of their customers and build a foundation for the business of next summer and fall, when there may be sufficient cars to meet the demand.

Buyers Want Special Work.

Price did not appear to cut much of a figure with the buyers of cars at the shows. In fact, the higher the price, the more eager some purchasers were to secure a car. This attitude was especially noticeable in regard to custom body work.

A few years ago it was quite an event for a dealer to receive an order from a customer who wanted the body built and equipped according to his own specifications. Now, with the higher priced cars, there is a large proportion of orders which specify special coach work or finish. And this is not limited entirely to the higher priced classes of cars, for it is not strange at all for a buyer of a medium priced car to order a body that costs as much as the chassis.

This is undoubtedly due to the fact that many owners feel that with the roads so crowded with cars they must have something distinctive. There is also a growing tendency for the owner to express his individualism in his motor car, as he does in his home and its furnishings, because he spends a considerable part of his time in his car. The great increase in the number of women drivers also has an influence upon the trend toward the custom built car.

Enclosed Bodies Demanded.

The sales that have been made at the shows indicate a strengthening of the tendency of the past few years toward the enclosed type of motor car for all-the-year use. The open touring car and roadster probably will never go entirely out of favor, for to ride in the open has a great fascination. But with the acceptance of the car as an indispensable utility, to be relied upon in every season and in all weathers, the protection afforded by the enclosed cars has a strong influence upon sales.

The enclosed car used to carry with it the necessity of a chauffeur, but that has largely passed away. The limousine is still in demand, and is essentially a

(Continued on Page 61.)

System for Handling Charge Accounts

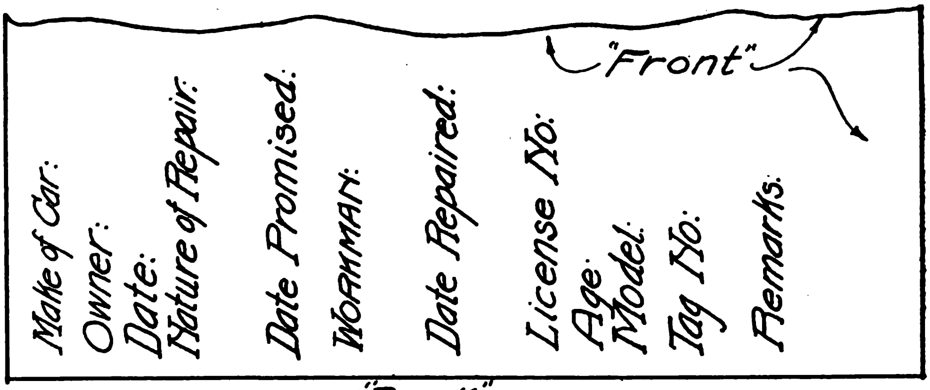
By Walter Engard.

THAT credit is a mighty force in modern business requires but little proof in view of its extensive use by retail merchants, automobile dealers, wholesalers and manufacturers the world over. That, as a matter of fact, it is an indispensable element in our present day commerce cannot be denied. Fully 90 per cent. of the business of this country is carried on by credit. Its application to the retail business is almost universal. And, while the credit business has some disadvantages, the real advantages of the credit business outweigh the disadvantages two to one in favor of credit.

Retail credit has come into disrepute because of the fact that it has not been adequately controlled. Business men have been too easy in the extending of credit. They have extended credit without the necessary facts upon which they could intelligently base the advisability of credit; in other words, they have extended credit in many cases where they would not for one moment think of extending a minor loan. They have been too lax in their methods of keeping books and entirely too lax in their collecting methods.

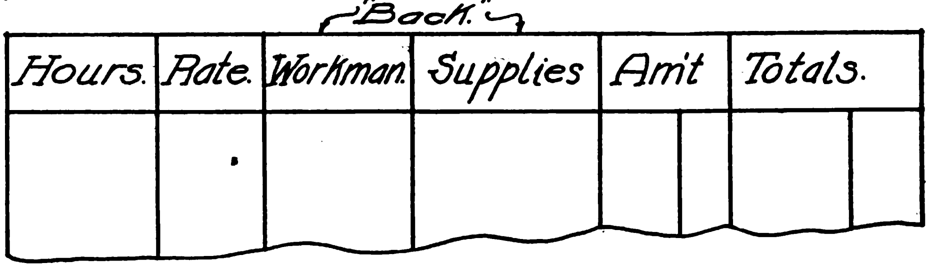
Credit, when handled through the proper system, is a mighty business builder. Credit, as a usual thing, appeals to the better class of trade than the cash method. Credit binds the customer closer to the house extending him credit, and also brings the customer back with a greater degree of regularity.

Credit enables the merchant to extend his business dealings to a greater extent than he could through the strictly cash basis, resulting in a much larger volume of sales, therefore more profit, even though he may suffer a few losses through bad accounts.



"Front"

Make of Car:
Owner:
Date:
Nature of Repair:
Date Promised:
Workman:
Date Repaired:
License No:
Age:
Model:
Tag No:
Remarks:



"Back."

Hours.	Rate.	Workman.	Supplies	Amt	Totals.

For illustration, let us say that through a strictly cash system the merchant does an annual business of $75,000 upon which he realizes a net profit of five per cent., or a total of $3750. Now, if that same merchant by doing business on a credit basis can increase his business from $75,000 to a volume of $150,000 yearly, and by using a proper system of extending credit and a systematic method of collecting his accounts—his loss should never be as high as one per cent., and this percentage would be high under a proper system—he would still have a gain of $2250 in net profits, or the difference between five per cent. net profit on $75,000 and four per cent. on $150,000.

In view of these facts the retail automobile merchant may do well to encourage credit business. This may be a bold system, yet nevertheless true.

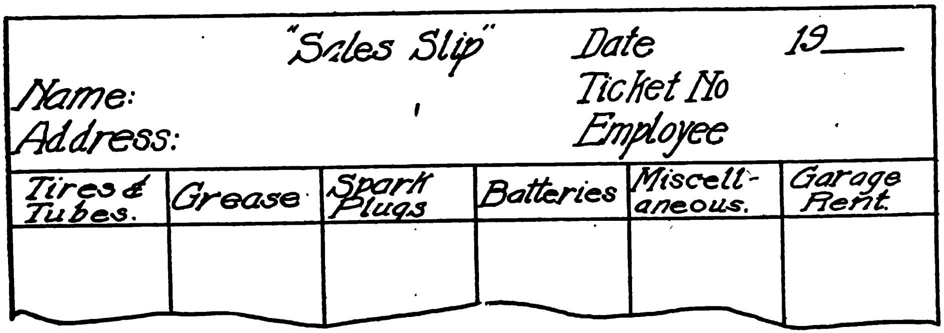
Value of a Credit System.

But the purpose of this article is not to discuss the advantages or the disadvantages of the credit business, but rather to place before the auto dealer and the garage man methods whereby he can conduct his business upon a more profitable basis and speed up collections. As all have to do business on a credit basis the information presented should be of decided value.

There is but one right way to do a thing, and there is but one right way to install a proper credit system and that is to start right at the bottom and build up. Therefore, the very first thing for the dealer to do is to see that every article of stock is provided with a price ticket, upon which can be entered the name of the article, the manufacturer, the cost, the selling price, to whom sold and by whom sold. These tickets should be in the form of shipping tags and should be placed on every article of size, such as machines, tires, jacks, tools, etc. For smaller articles, such as spark plugs, piston rings, etc., a small sticker may be used.

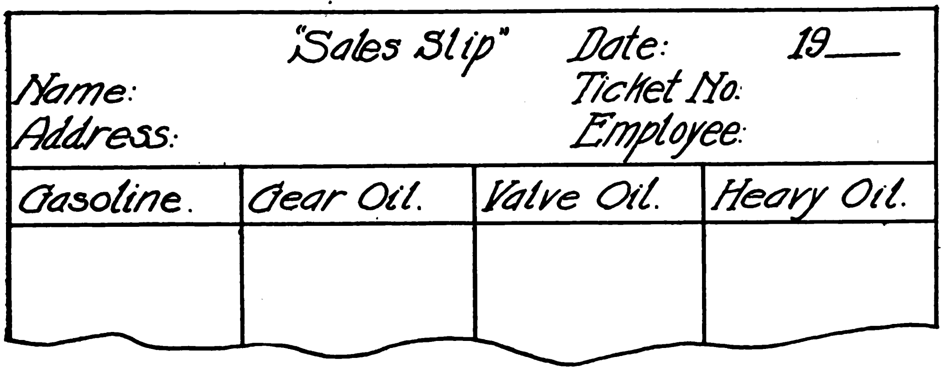
In the repair and garage department a shipping tag ruled and printed in such a manner as to accommodate the entering of the name of the car, the name of the owner, the name of the workman, the date the car was brought in and the day repaired. The reverse side of this tag should be so ruled as to allow the entering of the labor, material, etc., used in making the repair. (Note illustrations of both shipping tags.)

Sales slips should be provided upon which the employee making a sale or repair may enter the date, the name and address, and the article or articles, etc.,



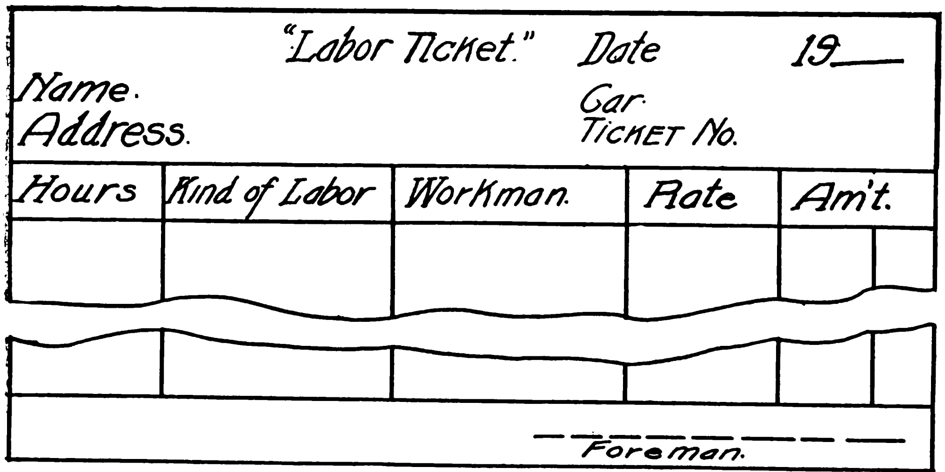
"Sales Slip" Date 19___
Name: Ticket No
Address: Employee

Tires & Tubes.	Grease	Spark Plugs	Batteries	Miscell-aneous.	Garage Rent.



"Sales Slip" Date: 19___
Name: Ticket No:
Address: Employee:

Gasoline.	Gear Oil.	Valve Oil.	Heavy Oil.



"Labor Ticket." Date 19___

Name.
Car
Address.
Ticket No.

Hours	Kind of Labor	Workman.	Rate	Am't.

Foreman.

which are to be charged to the customer. Three separate sales slips should be provided, one for the purpose of recording all sales of supplies, one for sales of gasoline and oils, and one for recording repair work and garage rent. (Two of these tickets are herewith illustrated.)

Sales Slips as Reference.

When an employee sells supplies or gasoline and oils or makes a repair on a car, he should fill out the proper sales slip and turn it into the office, together with the price tickets detached from the article sold if tagged. The bookkeeper will enter the charges on his ledger from the sales slips and then the sales slips and the price tickets should be filed for reference should occasion arise for their examination.

For the purpose of keeping these sales slips and price tickets on file for immediate reference, an index file system should be provided for each one. Both files should be four by six inches, as both the sales slips and the price tickets are this size. The index drawer for filing the price tickets should be equipped with guide cards running "A to Z" and should have a capacity of at least 1250 cards.

Additional drawers may be added as the business demands. As the price tickets come into the office the bookkeeper will file them in this index drawer behind the correct guide card. For instance, if the salesman sells an automobile to Oliver Summers he will detach the price ticket from the car and enter upon it the name of Mr. Summers and his own name, and, together with the sales slip, he will send both to the office and the bookkeeper will file the price ticket behind the guide card "S" in the index drawer.

Now should it become necessary to refer to the price ticket for the purpose of determining some fact, all that is necessary is to open the index drawers and behind the guide card "S" will be found the original price ticket as it was taken off of the car the day it was sold.

How to File Sale Slips.

The index drawer for filing the sales slips should be equipped with plain guide cards with one cut. The one cut style has a tab extending a little above the body of the card upon which may be entered the name of the customer behind which the sales slips of that customer are filed.

As soon as the bookkeeper has transferred the charge from the sales slip to the ledger sheet he will file the original sales slip behind the guide card in this index drawer bearing this customer's name. Whenever a new account is opened a guide card bearing the new customer's name may be added. The cards should be filed alphabetically, and more drawers may be added as the business demands.

With this system all sales can be traced back to the employees making them in case of any dispute. A customer may come in, after receiving his monthly statement, and state that there must be some error—that he did not buy an article specified in his statement on that date—that there must be some mistake in transferring the charge. All the book keeper needs to do is to refer to the sales slip index drawer and locate the original sales slip and, if necessary, he may tell from it the man making the sale and prove the correctness of the charge through him.

The advantages of having the price tickets and sales slips on file for reference are many and a great many disputes will be settled without difficulty and ill feelings.

The Ledger Accounts.

The next thing will be to provide a suitable ledger in which to keep the accounts. There are a great many systems of keeping accounts sold commercially, any if which is good, but for the auto dealer and the garage man I would recommend a loose leaf ledger system.

The ledger should be an extension post type allowing the insertion or removal of accounts without the necessity of a new ledger. Ledger sheets should be 11 by 11 inches, and so ruled as to accommodate the entering of the date of each charge, along with a description of the sale and the amount of the charge; also columns for entering the credits and balances.

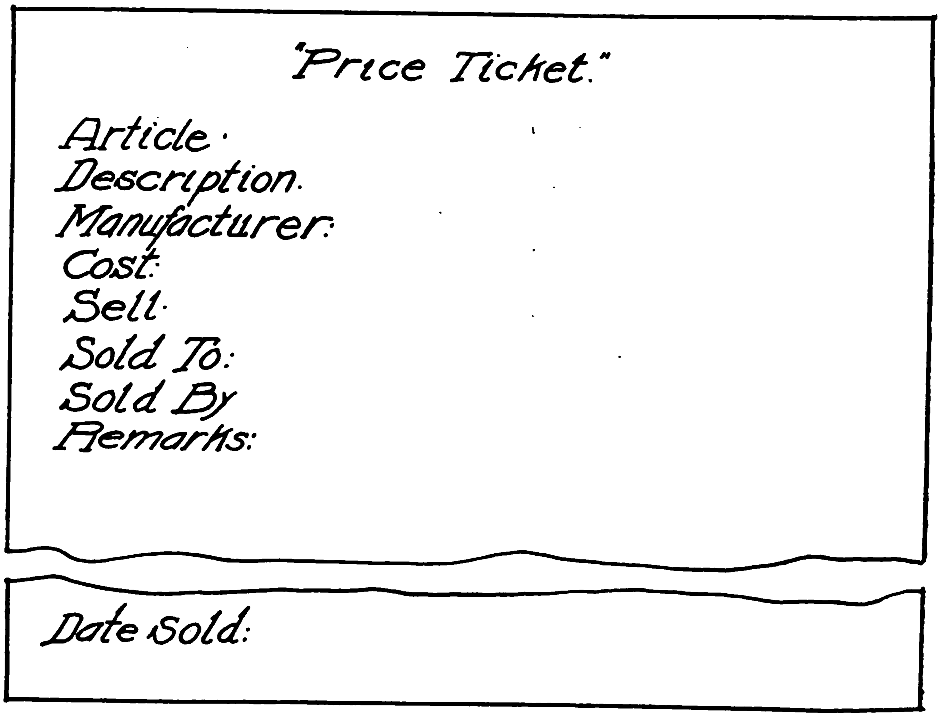
Every ledger account should be kept in duplicate by providing a plain ledger sheet of the same size as the ruled sheet to be placed directly following the main ledger sheet of each account, so that by placing a sheet of carbon paper between the two sheets a duplicate of each account may be made.

By doing this the original ledger sheet may be used as monthly statements, thereby saving a great deal of time in getting out bills, and this will also insure an itemized statement for each customer. The duplicate will be retained as a permanent record in the ledger until the account is settled.

The Utility of Controlling Sheets.

There should also be a controlling sheet for each account. These controlling sheets should be placed in the front of the ledger and an index of them kept, facilitating the finding of the various accounts. The pages for this controlling sheet should be of the same size as the ledger page, but of a little heavier material, as they last for a considerable length of time, and if not of heavier weight will soon become worn.

These sheets should be ruled in the same manner as the ledger sheets with the exception that they will not bear the name of the business, but will be ruled



"Price Ticket."

Article.
Description.
Manufacturer:
Cost:
Sell.
Sold To:
Sold By
Remarks:

Date Sold:

to within an inch of the top, leaving sufficient space to enter the name of the customer and the account number.

At the close of the month when the statements are mailed the bookkeeper will enter on this controlling sheet the date and the amount of the account, as:

"March 1st. February account as per statement, $23.75."

Should the customer respond to the statement and come in and settle the account the bookkeeper will then enter on this controlling sheet the credit as:

"March 3rd. Received on February account, $23.75."

This amount is entered in the credit column in red ink. Should the customer, however, only pay a part of the account then there will be entered:

"March 3rd. Credit on account, $15."

The balance of $8.75 will be entered in the balance column. (Note illustrations.)

Copies of Accounts on File.

The copy of all accounts should be also filed for reference, and for this purpose a vertical file should be provided, having as many drawers as may be necessary. Each drawer should be equipped with "A to Z" guides, also "guide high folders" for filing each customer's accounts separately.

These guide high folders have tabs which extend above the body of the folder and upon these tabs are entered the names of the customers whose duplicate ledger sheets are to be filed within the folders. These folders are filed behind the correct guide cards.

This method saves considerable time in referring to old accounts, as all duplicates of any one person's account are filed in one folder. For instance, if there is a customer by the name of Samuel Ramsey his name will be entered on one of the folders and it will be filed behind the guide card "R." When necessary to refer to the duplicate ledger sheets of his account back of guide card "R" will be found the folder in which are all the duplicate ledger sheets of that account.

Each account should be numbered and the number entered upon the controlling sheet following the name of the customer and the controlling sheets arranged alphabetically through the use of index guide sheets. When referring to any certain account turn to the index of the ledger and find the controlling sheet for that particular account, find the number of the account and turn to the account in the ledger.

Information of Credit Customers.

Of course the dealer will have some knowledge of the person to whom he sells goods on credit, especially if his regular customers. However, the dealer should arrange to obtain information regarding any applicant for credit so that he can intelligently decide the application, and obviate losses through bad credits.

For this purpose he should have "Information Cards" upon which he can note such facts as will aid him in determining the advisability of allowing credit to a customer. This card should be four by six inches and ruled so as to provide for entering the information secured, such as the name and address of the applicant, the occupation and business address, whether property owner or not, approximate income, number in family if married, with whom he has had business dealings and references. (Note illustration.)

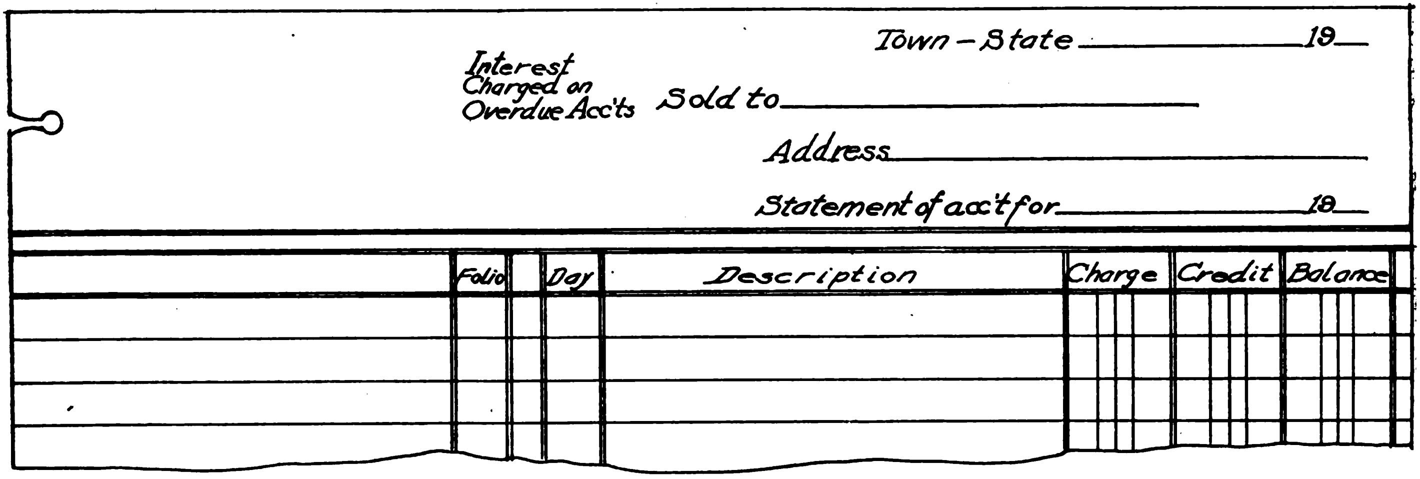
When a customer makes application for credit this information should be required. In the first place the merchant should ask for a personal interview, and during this interview he must endeavor to establish the integrity of the customer and his resources.

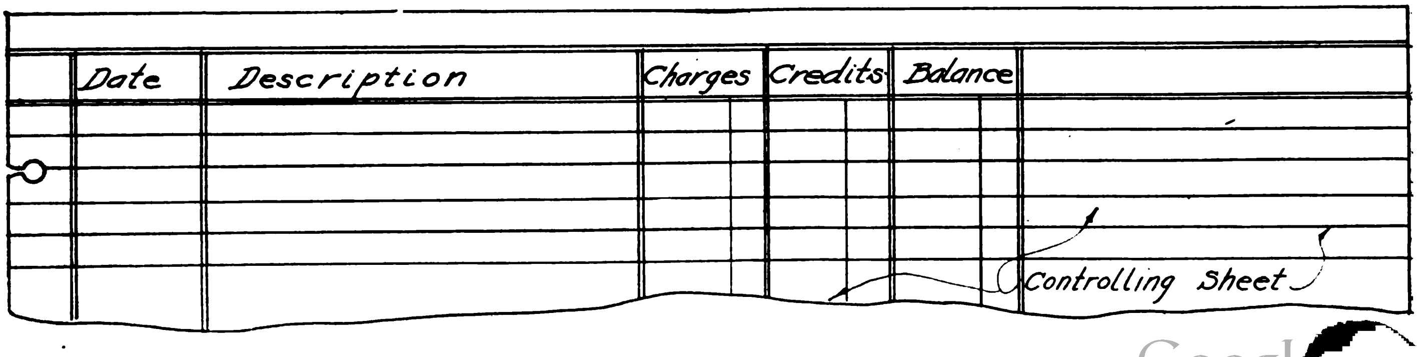
The first essential, the integrity of the applicant, the merchant must be able to determine through his powers of observation and his ability to read human nature, and also from the consistency of the facts given him by the applicant. His resources the merchant must find out, either from direct questions as to his position, his income and property, etc., or through tact and diplomacy, and draw from the applicant all the information he wants so tactfully that the applicant is unaware of giving it. Which is the best plan each dealer must decide for himself.

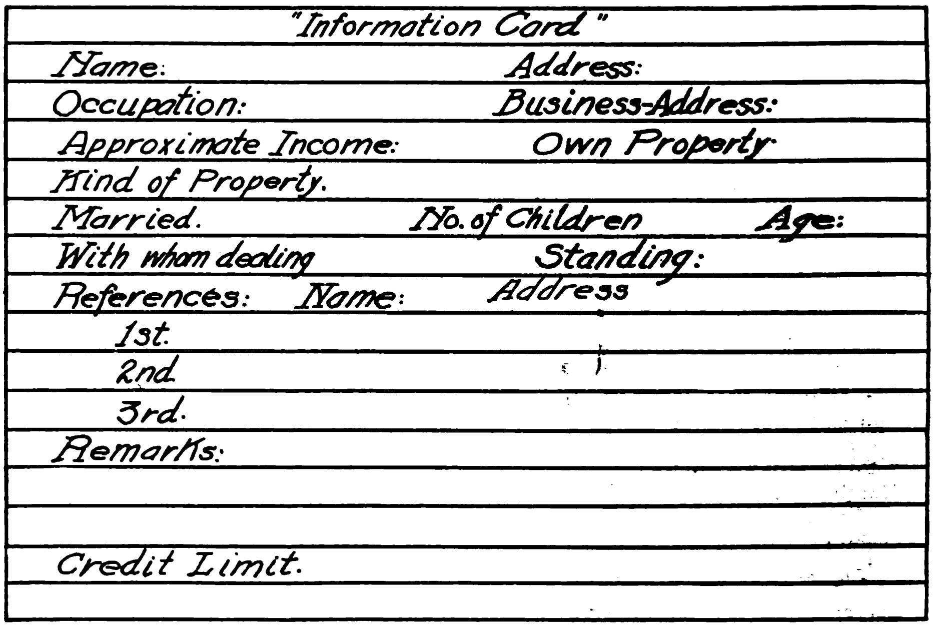
Some merchants claim that to examine a man or woman with a series of direct questions regarding resources, income, etc., with a "I know you're dishonest anyway" attitude, does not leave the customer in the best frame of mind. However, the dealer can use the methods of securing information that are most satisfactory. When an applicant seems sensitive the merchant may draw out the information he wants in an indirect way. To do this without seeming to pry into the applicant's private affairs unnecessarily requires considerable tact and judgment. All information, however obtained, should be verified from outside sources.

Emphasize Credit Rules.

After the information has been secured and verified and credit is allowed, no matter to what extent, the merchant should impress upon the customer his credit rules. Every dealer should have his own particular rules, which he should demand that all customers live up to. It may be that all bills are due the 10th of each succeeding month and if not paid by the 10th shall bear interest at the rate of seven per cent., or it may be that the dealer requires his customers to arrange for a further extension of credit in case the current month's bills cannot be set-







"Information Card"

Name: Address:

Occupation: Business-Address:

Approximate Income: Own Property

Kind of Property.

Married. No. of Children Age:

With whom dealing Standing:

References: Name: Address

1st.

2nd.

3rd.

Remarks:

Credit Limit.

tled when due. No matter what the rules, see that they are lived up to in every case.

A card index file should be provided for the information cards after they have been filled and credit given. The merchant should set a credit limit and enter this figure upon his information cards and file for reference. Space at the bottom of each card should be provided for remarks. For instance, a man may purchase an automobile of you on time, the cost amounting to $1350, and he lives up to your terms to the very letter then you will enter this information on your credit card so that should the occasion arise for further credit you can refer to your previous dealings with this man.

In all cases where the amount of the credit is large, as when selling an automobile, or a lot of tires to a sub-dealer, the merchant should always demand a note, a bankable note, with or without interest as the merchant may see fit, until after maturity. If sold upon the plan that the purchase price is to be paid by three equal installments, then he should make out three separate notes, each maturing at a given time. If bankable notes are not secured, in the case of the sale of a machine, then he should require a note together with a mortgage on the machine until the purchase price has been paid.

For the convenient filing of contracts and mortgages the dealer will do well to provide "Document File Cabinets" equipped with "A to Z" guides and the contracts and mortgages may be filed alphabetically therein.

Collections Must Be Systematic.

But the matter of extending credit and promptly collecting the accounts when due are two different things. The real work of the credit dealer is not so much in opening accounts, although that is very important, as they have a direct bearing upon the collections, as keeping in close touch with the accounts and making prompt collections. In collecting the credit dealer must again have tact and discretion and good knowledge of his customers and their affairs to avoid offending them.

If the merchant will lay down certain credit rules and see to it that every customer understands them, and that every customer lives up to them, half his troubles collecting his accounts will be obviated. Every customer should have a copy of the merchant's credit rules, and for this purpose the dealer should have these rules printed and a copy enclosed with each statement mailed. Statements for all accounts should be mailed the evening of the last day of the month and all accounts should be due and payable by the 10th of the following month. All accounts not paid by that date should bear interest at the rate of 7 per cent.

The merchant should always bear in mind that prompt collections has a tendency to increase sales and he should give his accounts uniform attention. A customer whose account is overdue, especially if it is large, may transfer his patronage to another place because he is in fear of being refused further credit and he does not wish to increase his liability.

It is true that the longer an account remains uncollected the harder it is to collect. Repeated efforts to collect an account without success often irritates a customer and makes him more determined to put off the settlement of it. For this reason the merchant must be insistent in his demand for settlement when the account is due, and, after an honest effort to collect it, should lose no time in placing it for collection through legal methods.

Often a customer can be induced to give the merchant bankable paper in settlement for an overdue account where he is financially unable to raise the money, and in such cases acceptance of this is advisable.

Care in Invoking the Law.

When an account reaches the stage where it is apparent that the customer is attempting to avoid the payment of it, and it becomes a question of getting payment in the quickest and surest way, legal steps should be taken. However, the merchant must first make up his mind that this customer is lost to him ever after that, for once legal action is taken it is a bad policy for a merchant to open another account with such a customer, not only because he has proven himself untrustworthy and unprofitable, but also because a customer once sued by a house is usually itching to put that house in the hole at the first opportunity. Therefore, the merchant should first make up his mind that it is to his interest to close the account in this manner before taking such steps.

Customers can be trained to become prompt in settling their obligations as well as they can be trained to become dilatory, and once the merchant has impressed upon his customers that prompt settlement is necessary for further credit he will have little trouble with charge accounts.

The average customer is honest and when he opens an account with the merchant his intention is to pay, but circumstances may come that make it a little inconvenient for him to settle and if the merchant is a little lax in his demands for settlement the customer may allow the obligation to drag along until finally it is beyond his ability to pay and then he endeavors to avoid its payment.

If merchants would be more strict in their collecting methods very little trouble would result through a proper system. In other words, the merchants themselves create the dead beat through loose methods.

BOSTON DEALERS OPTIMISTIC.

Boston automobile dealers are filled with optimism and enthusiasm and they believe that this year will prove a record breaker in the number of sales. The mild weather has resulted in buyers taking their cars immediately instead of ordering them for future delivery. With a splendid start already the dealers are confident that they will make more money this year than they ever did before.

Smiles greeted the interviewer when he questioned some of the dealers as to the outlook.

"It will be the best year ever," they all agreed.

The wage earner is beginning to show up as a big buyer. Having made money during the war and continuing to demand high wages, he can afford to own a car. And usually he wants a good one; no "flivver" for him.

When a man in working clothes enters a salesroom the salesman takes it for granted that he has come to look over the cars, and gives him just as much consideration as he does the well dressed visitors.

Every dealer in New England is expected to share liberally in the wonderful prosperity that is sure to come to the automobile dealers this year.

BUY GARAGE.

The Universal Garage, 310 Ninth street, S., Minneapolis, Minn., has been sold by C. O. Bergh to D. G. Sheldon and A. J. Barry.

Personal News of the Industry in Brief.

E. A. Broehm, who has been in charge of the Detroit service station of the Harrison Radiator Corporation, is now with the United Motors Service, Inc., to develop for the Harrison Radiator Corporation of Detroit and Lockport, N. Y., a national service similar to that which it maintains for Delco, Klaxon and Remy divisions. Mr. Broehm's duties will be to develop radiator car data or application records in connection with all cars and all makes of radiators. A special traveling representative will be appointed and will establish relations with engineering departments of car manufacturers. Harrison radiator cores will also be carried in stock at all United Motors Service branches. Mr. Broehm will work out with the drafting department of the United Service Inc., drawings for standard testing apparatus and will get under way the building of a "radiator personnel" for the branches.

E. A. Broehm, Now with the United Motors Service, Inc.

Charles W. Unbehaun has joined the Black & Decker organization in the capacity of branch manager. Mr. Unbehaun will cover eastern New York and the State of Connecticut, selling Black & Decker portable electric drills, Lectroflater electric air drills and electric valve grinders. He was formerly New York City and general eastern salesman for the Bailey-Drake Co., Chicago, Ill.

Lieut. E. A. Wales has re-entered the employ of the Raybestos Co., Bridgeport, Conn. He was formerly chief of production, Motor Division, Quartermaster Corps, Cleveland, O. Prior to enlisting in the United States government service Lieut. Wales was in charge of the Raybestos Detroit office and will resume this position, making his headquarters at 1713 Dime National Bank building.

J. H. Malone is now vice president and general manager of the William F. Hudson enterprises in Philadelphia, Hudson Motor Specialties Co., Hudson Motor Axle Co., Precision and Thread Grinder Manufacturing Co., Hudson Peck Machine Products Co. He was formerly advertising director of the Chilton publications, Philadelphia, Pa.

F. W. Bartling has resumed his former position as manager of the Bart Motor Sales Co., Dayton, O. The company handles Haynes and Liberty cars. He was formerly in the air service.

E. H. Walker has resigned as Detroit district manager for the Vanadium-Alloys Steel Co., Pittsburgh, Pa., to become secretary and treasurer of the Michigan Metal Supply Co., Detroit. He was for eight years associated with the Vanadium-Alloys Steel Co.

B. V. Osborne has been appointed sales manager for John L. Judd Co., Boston, Mass. He was formerly sales manager for the Fulton Motor Truck Co. of Philadelphia, Pa. Mr. Osborne has also been in government service.

J. F. Mackin has joined the Black & Decker Manufacturing Co. as its Ohio representative. He was formerly connected with the Independent Pneumatic Tool Co.

Frank G. Eastman, formerly advertising manager of the Packard Motor Car Co., has resigned his position and joined the staff of the Lincoln Motor Co. of Detroit.

Milner T. LaHatte has become division sales manager for the Selden Truck Sales Co., Rochester, N. Y. His headquarters will be in Atlanta, Ga. Mr. LaHatte succeeds C. M. Snow in supervision of the southern territory. Mr. Snow has been appointed special field supervisor and will have his headquarters in San Francisco.

Birkett L. Williams is now sales manager of the truck department of the Grant Motor Car Corporation, Cleveland.

Birkett L. Williams, Manager Truck Sales Grant Motor Car Corporation.

C. L. Falkinburg has joined the Voorhees Rubber Co. and will have headquarters in Jackson, Mich. He was for a number of years with the Sparks-Withington Co.

W. B. Wood has joined the sales force of the Commerce Motor Car Co. and will represent the company in the western territory. He was for 17 years Detroit manager for Fairbanks, Morse & Co.

W. B. Wood, Eastern District Manager, Commerce Motor Car Co.

Joseph B. Linerd was re-elected president for a second term of the Globe Rubber Tire Manufacturing Co., New York City. Previous to this connection he was with the Goodyear Tire and Rubber Co. and later sales manager of the Ajax Rubber Co.

C. O. Caniff is now superintendent of the eastern sales zone of the Duplex Truck Co., with headquarters at Atlanta, Ga. He was formerly assistant to R. W. Langenbacher, the sales manager.

G. W. Cherry, Denver, Col., has been appointed distributor for Turner Simplicity tractors in Colorado.

Conroy Fiero has sailed for Europe, where he will study the market conditions for the Buda Co., Harvey, Ill., builder of engines. He was formerly Washington representative for the Buda company.

R. L. Gilroy has been appointed New England representative of the Hudson Motor Specialties Co., Philadelphia, Pa.

Claude Greenhoe has assumed the duties of chief engineer of the Motor Bearings Division of the Hyatt Roller Bearing Co., Detroit, Mich. He fills the position formerly held by R. G. Wells, who has been promoted to chief engineer of the Hyatt factories at Newark, N. J. Mr. Greenhoe was formerly with the Militor Corporation of Newark, N. J., where he was engaged in experimental work on the famous Militor four-wheel drive truck, also the Militor motorcycle. Previous to this he was prominently connected with the Republic Motor Truck Co., the King Motor Car Co. and the American Gear and Manufacturing Co.

W. H. Diefendorf has resigned his position of chief engineer and director of the New Process Gear Corporation, Syracuse, N. Y. He is now connected with the Weeks-Hoffman Co., Syracuse, N. Y.

A. H. Sowers, Prominent Boston Dealer, New England Distributor of Lexington Cars.

A. H. Sowers has taken the Lexington car agency for New England and has opened retail sales rooms at 753 Boylston street, Boston, with George Kimball in charge. Mr. Sowers has a large service station at Brighton square, where there is every facility for meeting the requirements of the Lexington owners.

C. E. Dailey has engaged in business in Sioux City, Mo., as distributor of Chandler Six cars. He was for several years Sioux City branch manager for the Hanson & Tyler Automobile Co. of Fort Dodge, Ia.

J. H. Mobley has acquired an interest in the company and become secretary of the Reidsville Motor Co., Reidsville, N. C. The Reidsville company handles Overland and Chevrolet cars and does a repair business.

Lieut. John N. Rosholt has been discharged from army service and become manager of engine starter battery sales for the Chicago branch of the Electric Storage Battery Co. Prior to entering the army Mr. Rosholt was connected with the Electric Storage Battery Co. for nine years.

E. Thomas, formerly of the Thomas Auto Repair Co., Detroit, has joined the service department of the City Tire and Repair Co. of that city.

W. H. Putnam, treasurer of the Madison-Kipp Lubricator Co., Madison, Wis., died at the Hanover hospital from influenza, which developed into pneumonia. He was one of the founders of the company and when it moved from Rochelle, Ill., to Madison, he was appointed a director and treasurer. The company is now one of the largest makers of force feed lubricating devices in the world.

Charles O. Britton has been elected president of the Hartford Automobile Dealers' Association, Inc. A. C. Hine was elected vice president, Dwight A. Burnham treasurer and A. C. Rose will continue as secretary.

R. L. Hutto has been appointed manager of the St. Louis office of the Delhi Battery and Supply Co., distributor of Prest-O-Lite storage batteries.

L. F. Jalageas is now wholesale manager of the Southwest Motor Co., Reo distributor for Kansas City, Mo. He was recently with the Kardel Motor Co., St. Louis, and the Reo branch at Chicago, Ill.

D. C. Richardson, for several months in the army, has resumed his duties with the sales force of the Detroit branch of the Cadillac Motor Car Co.

Eugene C. Spraker, Grand Rapids, Mich., is again selling Saxon cars for the Becker Auto Sales Co. He has been overseas and served as a lieutenant with the 32nd Division.

T. M. Williams has assumed the duties of manager of the automotive equipment department of the Peaslee-Gaulbert Co., Louisville, Ky. He was for the past five years sales manager of the Louisville Automobile Supply Co.

Neil MacCoull has returned from duty in France with the Naval Air Forces. He is now with the Texas Co. as automotive engineer in the sales department, with headquarters in New York. Before enlisting he was a mechanical engineer in the machine works of the Westinghouse Electric and Manufacturing Co., Pittsburgh, Pa.

J. O. Hofbauer is now with the Lexington Motor Co., New York, N. Y. He was formerly general sales manager of the Paige-Detroit Co., New York. A. J. Wise will succeed him at the Paige-Detroit Co.

Le Roy Kramer has been appointed vice president of Willys-Overland Co., Toledo, O., in charge of production. Mr. Kramer succeeds C. O. Miniger, who has retired, to devote his entire time to the presidency and general management of the Auto-Lite Co. For many years Mr. Kramer was vice president in charge of manufacturing of the Pullman Co. of Chicago.

E. L. Yocum, formerly salesman for the Avery Co., Peoria, Ill., has been promoted to the position of manager of the Fargo, N. D., branch.

R. P. Bishop will distribute Nash cars and trucks under the firm name of the Nash-Saginaw Motors Co., at Saginaw, Mich. He was formerly assistant sales manager of the Nash Motors Co. L. A. Wilson, who was also identified with the Nash factory, is his partner.

J. H. Harding, who was formerly advertising manager of the Remy Electric Co., has become assistant advertising manager of the motor equipment division of the United Motors Corporation, Detroit, Mich.

R. J. Snowhook is now in the advertising department of the Nash Motors Co., Kenosha, Wis. He was for three years connected with the Willys-Overland Co., Toledo, O.

John B. Giovanoli has become associated with the Fuller & Sons Manufacturing Co., Kalamazoo, Mich., as tool superintendent. He was formerly connected with the following concerns: Willys-Overland Co., the Hudson Motor Car Co. and the Continental Motors Corporation.

E. B. Wilson has been appointed manager of the Philadelphia branch of the Buick Motor Co. He was formerly in charge of the Memphis and Chicago branches of the company.

H. Edsall Olson has been dismissed from service. For the past year and a half he has been in the Aviation Corps. Mr. Olson has returned to his former position with the American Bureau of Engineering, Chicago, Ill.

I. B. Meers has become associated with the Panhard Motors Co., Grand Haven, Mich., as general sales manager. He will handle the export trade of the company as well as American sales. Mr. Meers has had 12 years experience in various sales capacities in connection with domestic and foreign enterprises. He has traveled practically over all sales territories in the United States for different automobile companies.

S. R. Swiss is now in charge of the advertising department of the Republic Motor Truck Co., Alma, Mich. He was recently associated with the Ivan B. Nordham Co., poster advertising, Pittsburgh, Pa. Blaine McGrath, who was the former advertising head, is going into the sales department to cover territory in four southern states.

Loyal E. Thompson has been appointed assistant manager of the service department of the Republic Motor Truck Co., Inc., Alma, Mich. He was formerly connected with the service department of the Cadillac Motor Car Co.

W. H. Lacey has become manager of the new Hartford branch of the Kelly-Springfield Tire Co. The store will be located in the Judd & Root building.

J. E. Duffield, for many years associated with the automobile tire business and latterly general manager and treasurer of the Bailey Non-Stall Differential Corporation, has been elected vice president in charge of the sales division of the Essenkay Products Co. He will take up his new duties at the general offices in Chicago.

Robert E. Page has joined the Commerce Motor Car Co., Detroit, Mich., to act as district sales manager in Canada. He was for four and a half years assistant foreign sales manager for Dodge Brothers, Detroit, Mich.

Robert E. Page, New Canadian Representative of the Commerce Motor Car Co.

Lieut. D. W. Bay, who served 15 months in the Quartermaster Corps, Motors Division, Department of Production, has returned to his former position with the Hyatt Roller Bearing Co., Detroit. Mr. Bay will have charge of Illinois, Wisconsin and the Northwest, with offices in Chicago.

William A. Kent has become associated with the S. J. Fitzsimons Co. of Detroit. He will handle the sale of mouldings and metal stampings. He was formerly manager of the Kawneer Manufacturing Co.

Lieut.-Col. A. B. Jones, vice president of the B. F. Goodrich Rubber Co., Akron, O., has returned from overseas. He was supreme head of the Red Cross work in France during the last three months, having succeeded Col. Harvey Gibson as commissioner for France, who became chairman of the commission.

Fred Vickery has been appointed sales manager of the Harrisburg Auto Tire and Repair Co., Liberty dealer at Harrisburg, Pa. Mr. Vickery was formerly sales manager of the Cadillac-Hinton Co.

S. A. Marks has been appointed vice president of the Cutting-Larsen Co., eastern distributor of the Oldsmobile. Mr. Marks has been with the company for 11 years.

W. B. Huntley has joined the sales force of the United Alloy Corporation, Canton, O. He was until recently a lieutenant in the Ordnance Department and prior to his enlistment he was associated with the Crucible Steel of America.

George K. O'Donnell has been elected vice president of the Coe-Stapely Manufacturing Corporation. He will have charge of sales and his headquarters will be in New York. The company manufactures tire pumps, jacks and other accessories.

C. L. Fox has assumed the duties of sales manager of the Saxon Motor Car Corporation, Detroit. Mr. Fox has been with the Saxon company since its organization. During the last year he has been assistant sales manager and is known widely among the Saxon distributors and dealers.

A. H. Sarvis has resigned as sales manager for the Flint Varnish and Color Works, Flint, Mich., to become associated with the Willys-Overland, Inc., Toledo, O., where he will be connected with the "Fifty-Fifty Division" established by President John N. Willys to handle a profit sharing arrangement with Overland employees.

G. M. Rymarczick has assumed the duties of production engineer of the Simms Magneto Co., East Orange, N. J. He was until recently supervising senior inspector of the magneto section of the Bureau of Aircraft Production.

Harry C. Anderton has joined the sales force of the Ericsson Manufacturing Co., Buffalo, N. Y. He has been recently released from service with the Bureau of Aircraft Production and while in the government employ was district chief with offices at Dayton. Mr. Anderton is a graduate of the University of Wisconsin and before entering the service was sales manager of the J. O. Heinze Co., Springfield, O.

K. P. Drysdale has severed his connection with the Cleveland Tractor Co. For more than a year he was advertising manager and director of sales promotion of the company. Previous to this connection Mr. Drysdale was, for many years, advertising manager of the Cadillac Motor Car Co.

A. C. Miller has resumed his duties as vice president of the Miller-Judd Co., Liberty distributor, Detroit. He served one year in the U. S. Navy.

E. G. Hoffman has been elected president of the Motor Car Dealers' Association of Washington. The association held its annual meeting and elected the following officers: Max Olsen, vice president; Harry Austin, secretary, and Hugh Baird, treasurer.

W. B. Appleby has joined the sales force of the S. R. Thomas Auto Co. He will have charge of the truck department. Mr. Appleby was formerly with the Motor Truck Sales Co., Little Rock, Ark.

A. Shirley Ladd, Secretary, Massachusetts Mutual Automobile Insurance Co.

A. Shirley Ladd is secretary of the Massachusetts Mutual Automobile Insurance Co., Boston. Attractive rates for this insurance are offered by the Twin Mutuals, 40 Central street, Boston, which includes the Auto Mutual Liability Insurance Co. and the Massachusetts Auto Insurance Co. These companies operate under the strict insurance laws of Massachusetts, which are regarded as ideal. The Twin Mutuals is equipped to furnish all kinds of automobile insurance at cost, and has a splendid record for prompt and equitable adjustment of losses and liability claims.

C. M. Strieby has become advertising manager of the Fulton Motor Truck Co., Farmingdale, L. I. He was formerly with the Maxwell and Studebaker companies, and previous to that advertising and sales manager of the Smith Motor Truck Corporation, Chicago.

Gilbert U. Radoye has become advertising and assistant sales manager of the Haynes Automobile Co., Kokomo, Ind. He has been associated with the Packard, Hudson and Nordyke & Marmon companies, having been in the automobile industry several years.

Capt. Glenn W. Tisdale, soldier son of Glenn O. Tisdale, president of the Franklin Motor Car Co., New York City, has joined the selling force of his father's organization with a view of learning the business thoroughly and eventually handling it himself. He recently returned from France.

W. H. Crowley has been appointed wholesale sales manager of the Elgin Distributing Co., Inc., to take charge of sales in New York, Connecticut, New Jersey and Northern Pennsylvania.

A. R. Redburn is now sales manager of the truck department of the Walden W. Shaw Livery Co., Chicago, Ill.

Capt. Charles Smith of the Engineers' Corps, U. S. A., who is connected with the Commerce Motor Car Co., has returned from overseas.

L. D. Rockwell has given up his contract as eastern representative of the Standard Welding Co., now a division of the Standard Parts Co., and sales will be handled directly from the factory. Mr. Rockwell will continue with his other accounts.

Alvin H. Smith has resigned as manager of the Indianapolis branch of the Ford Co. to become president of the Indiana Tractor Co.

Ralph J. Handy has become distributor in Detroit and Wayne County, Mich., for the International Harvester Co., International trucks, and has sales and service quarters at 554-60 Grand River avenue, that city.

E. H. Beltzig has become manager of the St. Louis branch of the Sewell Cushion Wheel Co., Detroit, succeeding George F. Willis.

G. W. Werden is now export manager of the Denby Motor Truck Co., Detroit, Mich. His headquarters will be in New York City.

Gustave Huette has retired from the Falls Motors Corporation, Sheboygan Falls, Wis., of which he was founder and for many years president.

H. W. Clark has become associated with the Chicago Pneumatic Tool Co. as manager of advertising. He was formerly in the advertising service department of the McGraw-Hill Publishing Co. in Chicago.

John S. Keown, formerly in charge of the Ford Motor Co.'s branch at Albany, N. Y., is now the new manager at Louisville, Ky., assembly plant of the Ford Motor Co.

Stanley D. Livingston has been appointed designing engineer for the Connecticut Telephone and Electric Co., Meriden, Conn. He was formerly in charge of the apparatus design and drafting section of the Signal Corps Radio Laboratory, Camp Albert Vail, N. J. Before entering the army he was for a time with the New York Edison Co. and was assistant chief engineer of Disco, which latter position he resigned to become engineer in charge of the electrical installation at Camp Merritt, N. J.

H. J. Russel will sail for England to take care of the newly created Maxwell-Chalmers export department.

Richard Hudson is again with the Studebaker Riley Co., Kansas City, Mo. He has been in the aviation service.

Robert Rounseville has become associated with the Southern States Motors Corporation, with headquarters at Macon, Ga. He was for a number of years proprietor of the Cherokee Motor Co., Rome, Ga.

Capt. O. P. Taylor, who has been for a number of years secretary of the Worcester, Mass., Dealers' Association, and also manager of the Stanley branch in Worcester, has returned from France He was in charge of a heavy gun repair shop in France and will be stationed for a time in Washington.

C. A. Reigler, for 25 years with the William Edwards Co., has resigned to take a position as director of sales for the Ohio Trailer Co.

Herman L. Huber is now out of the army flying service and has resumed his former position as manager of the used car department of the Lewis Automobile Co., St. Louis, Mo.

N. W. Lovegrove has been appointed sales manager of the Herring Motor Co., Des Moines, Ia. For the past three years he was manager of the electrical department.

T. A. Cressey, for the past three years district sales manager of the Philadelphia Storage Battery Co., and for several years previous to that sales engineer of the Electric Storage Battery Co., has been appointed sales manager of the Cole Storage Battery Co., Chicago, Ill.

Rex D. Gilbert, for six years identified with the Firestone Rubber Co., has become secretary and treasurer of the Oldfield Tire Co., Cleveland.

Capt. Walter J. Munro has been released from service and has joined the General Motors Truck Co. He is well known in advertising and business circles and will be connected with the factory at Pontiac, Mich. While in the service he was connected with the ordnance production.

A. E. Archer has been dismissed from army service and resumed management of the Detroit Electric Sales Co., with headquarters at its garage at 5143 Delmar avenue, St. Louis.

Edward W. Dodge, formerly sales manager of the Norton Co., Worcester, Mass., is now general sales and works manager of the Star Corundum Wheel Co., Detroit, Mich.

W. H. Luhrs has severed his connection with the General Aluminum and Brass Manufacturing Co., Detroit. He was general manager and a member of the board of directors.

C. H. Breaker has been appointed assistant sales manager for the Diamond Chain and Manufacturing Co., Indianapolis, Ind. In this position Mr. Breaker will be in charge of sales promotion.

J. E. Duffield is now with the Essenkay Products Co., Chicago, Ill., as general director of sales. He was formerly with the United States Rubber Co. and the Thermoid Rubber Co.

Lieut. Russell Wherrett has been released from the aviation section of the United States army and has become manufacturer's representative for the Michigan territory for the Doble-Detroit kerosene burner. This article is manufactured by the Doble-Detroit Steam Motor Co., Detroit, Mich.

Maj. A. A. Robertson has become associated with George Ostendorf, Buffalo, Western New York distributor of Franklin cars. For 15 months he was a member of the American overseas air forces. Maj. Robertson was formerly assistant general manager of the Houk Wire Wheel Co. of Buffalo, N. Y.

Clifford M. Snow, who was formerly sales manager of the southern division for the Selden Truck Sales Co., Rochester, N. Y., has been appointed special field representative of the same company with headquarters in San Francisco. Milner T. Lahatte will be Mr. Snow's successor in his former position.

Frank Jay has been elected president and general manager of the Stanley Motor Carriage Co., Newton, Mass.

Leo M. Rumley is now vice president of the Parrett Tractor Co., Chicago, Ill. He will have charge of the sales, advertising and service departments.

Maj. Harry Unwin has been released from service and is now manager of the Chicago branch of the Reo Motor Car Co.

Maj. Harry Unwin, Manager, Chicago Branch, Reo Motor Car Co.

R. G. Ames has become associated with the Black & Decker organization in the capacity of branch manager in charge of the Chicago branch. For 10 years Mr. Ames had been with the Edward A. Cassidy Co. of New York.

R. B. Lyman has assumed the duties of manager of the Madison, Wis., branch of the Avery Tractor Co. of Peoria, Ill.

F. H. Smith is now sales manager of the Parrett Tractor Co., Chicago, Ill. For the past 12 years he has been sales manager for such companies as Studebaker, Hudson and Chalmers.

C. S. Puttman, who has been with the United States Tire Co. since 1911, has been appointed manager of the Detroit branch. He first started as a stock clerk and has made rapid advancement ever since.

Frank Lee has resigned as sales manager of the Fisk Rubber Co. in Wisconsin and upper Michigan. His successor is C. F. Troupe, who represented the Fisk Rubber Co. in the East and South.

Carl L. DuPuy, for 11 years with the Selden Truck Sales Co., Rochester, N. Y., has resigned. His successor is M. B. Keith, who was president of the Texas Truck Co., handling Selden trucks in Dallas, Tex.

A. L. Nelson, who was consulting engineer of Aircraft Armament at McCook Field, Dayton, has been appointed chief engineer of the Premier Motor Corporation, Indianapolis, Ind. He succeeds C. S. Crawford, who has been promoted to director of engineering and assistant general manager.

William H. Little is now manager of the Scripps-Booth Corporation, Detroit, Mich. During the war he was supervisor of engine production for the army in the Chicago district.

F. J. Fisher has ben released from the Motor Transport Corps and has resumed his duties as secretary and treasurer of the Standard Motor Truck Co., Detroit.

Birger Jacobson has sailed for Scandinavia on a business trip. He represents the J. B. Crockett Co., Inc., New York City.

Louis Von Klein, Portland, has been appointed sales manager for the Convey Motor Car Co., Dodge and Cadillac distributors.

Maj. William Mitchell Lewis has been promoted to lieutenant-colonel in the Signal Corps, U. S. A., of the American Army of Occupation. For many years he was a car manufacturer of Racine, Wis.

Lieut. Harold D. Bernstein, who was recently dismissed from the army, has again joined the Cadillac Automobile Co. of Boston. Before entering the service he was associated with the company for about four years. Mr. Bernstein will assume the duties of sales manager of the new car department.

A. H. Schiappacassee has resigned from the Dodge Brothers to become assistant manager and research engineer of the Brisk-Blast Co., Monroe, Minn. He was for six years connected with the engineering and service departments of the Dodge Brothers.

Harry E. Weiner has been appointed retail sales manager of the New York branch of the Maxwell Motor Sales Co. He will handle both the Chalmers and Maxwell line of cars.

Charles F. Coe has become associated with the Anderson Motor Co., Rock Hill, S. C. He will be vice president and general manager. Until recently he was manager of the Chevrolet Motor Co. of New England with headquarters in Boston.

Lieut. Fred M. Young has been released from service and has become associated with the Perfex Radiator Co., Racine, Wis. He will be sales manager.

George G. Norwood is now sales manager of the Lambert Auto Co. He was for many years manager of the used car department of the company. Mr. Norwood succeeds Mr. Lambert, who has gone to Washington to assume the position of sales director of the Lambert Hudson automobile of that city.

J. P. O'Brien, associated with the Anderson Electric Car Co. for the past six years, has been appointed district manager in Chicago of the central territory.

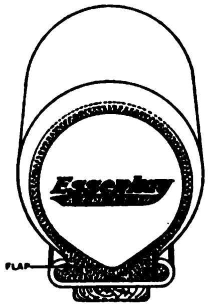
ACCESSORIES, EQUIPMENT AND TOOLS FOR THE GARAGE AND REPAIR SHOP

Automobile Varnish. A very attractive finish can be given a car with Norwesco color varnish. Only one coat of varnish is necessary and this will dry in from 12 to 15 hours. The color is ground into the varnish and gives a particularly brilliant finish. Only the very best of materials are used in making these varnishes. They will not chip, scale or peel. The colors are green, blue, gray, red, tan, orange, black and clear.

AUTOMOBILE
VARNISH
DRYS OVER NIGHT

Manufactured by the Northwestern Chemical Co., Marietta, O. Price, pint cans, 85 cents; quart cans, $1.50.

Essenkay. The tire filler idea is growing rapidly. Car owners everywhere welcome the opportunity to replace the inner air filled tubes with tire filler. With Essenkay, it is claimed, punctures and blow-outs are impossible, tire mileage is doubled and there is no expense for inner tubes, extra tires or rims, pumps, jacks or tire repair kits.



Essenkay filled tires wear down to the last layer of fabric and Essenkay can be used again in new tires. Essenkay is an elastic, resilient, durable composition. It is not affected by heat, cold, atmospheric or climatic conditions. It contains no rubber and therefore cannot harden, oxidize or bloom.

It is for both pleasure car and truck. A 10 days' free trial is offered to truck owners.

Essenkay filled tires with stationary rims weigh less than demountable rim equipment.

The Essenkay Products Co., Grand Ave., at Orleans St., Chicago, Ill. Write for literature and prices.

Peerless Automobile Specialties comprise different products for all parts of an automobile and fill a vacancy that has existed in the field of automobile repainting and upkeep. The specialties are suitable for use on both the high priced and the less expensive cars. These goods enable a motorist to turn out a job complete in every respect, not only finishing the body and wheels, as in the past, but also allow him to dress the cushions and top, finishing the cylinders, lamps, etc.

This line of products originally started with one item, Peerless Mohair Top Dressing, and has grown until the line contains 28 items, so that any jobber or dealer who stocks goods of this character can purchase all from one manufacturer and have them in one uniform style package.

Peerless Automobile Specialties
Peerless Cylinder Enamel, Black
The Columbus Varnish Co.

The Peerless Automobile Specialties include Peerless Mohair Top Dressing, Peerless Lamp Enamel (gloss and dull), Peerless Jet Black Fender Japan, Peerless Cylinder Enamel (black and gray), Peerless Extra Fine Black Japan, Peerless Acid Proof Battery Box Black, Peerless Ford Top Dressing, Peerless Anti-Rust Rim Paint, Peerless Shellac, Peerless Leather Top Dressing, Peerless Lining Dye, Peerless Cushion Dressing, Peerless Mirroroid (a varnish renewer), Peerless Auto Body Polish, Peerless Liquid Wax, Peerless Tire Paint.

Manufactured only by the Columbus Varnish Co., Columbus, O. Write for literature and prices.

"Superford" Radiators are for use on Ford cars and commercial trucks. They are made by skilled workmen and the inner units are constructed of brass and copper—no steel or sheet metal being used. The honeycomb core is of the identical type and design as used in the Packard radiator (2¼ inches deep), making the efficiency of the radiator more effective in cooling than the ordinary Ford radiator. These radiators are built in two models. No. 16 "F" fitting 1912 to 1916 Ford cars and model No. 18 "F" fitting 1917-18 Ford cars. Both types are features by having detachable casings, which can be taken off at will should the occasion arise, making them a two-unit construction.

"SUPERFORD"

Manufactured by the Superior Lamp Manufacturing Co., 136 W. 52nd St., New York City, N. Y. No. 16 "F," price $28; No. 18 "F," price $30.

Boyce Moto Meter. The new "Universal" model is smaller than the "Standard" $10 model, yet larger than the "Junior" $5 model. It is protected with beveled crystals. The "Universal" stands out boldly on top of the radiator cap, on the line of your vision with the road. Its handsome open face is easily read.

HOT
SUMMER
AVERAGE
COOL
MOTOR

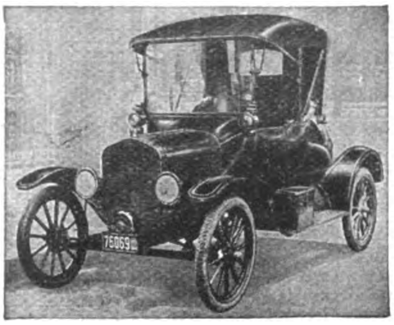
The "Ford" model, which has the name, "Boyce Moto Meter" at its top, will signal the driver of a Ford that more water is needed in the radiator 10 to 15 minutes before the radiator needs filling. It will indicate the need of lubrication long before the motor needs it. It adds to the appearance of the car.

Manufactured by the Moto-Meter Co., Inc., Long Island, N. Y. Prices: "Universal" model, $7.50; "Ford" model, $2.75.

Universal Hose Clamps will fit any size hose. These clamps have a wide range of usefulness. They fit in size and adjustment any hose requirement, large or small. They are simple, strong and convenient.

Manufactured by the Universal Industrial Corporation, Hackensack, N. J. Write for prices.

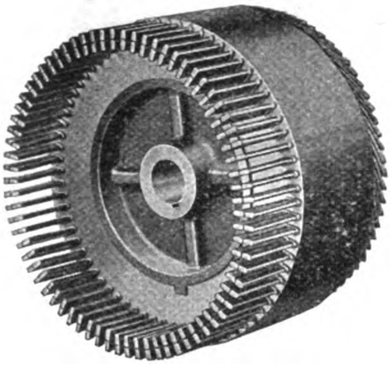
Dayton Electric Starting, Lighting and Ignition System for Ford Cars. It is possible to connect this equipment direct to the crankshaft because of the type armature of the motor dynamo, which is an entirely new construction recently invented by Vincent G. Apple.



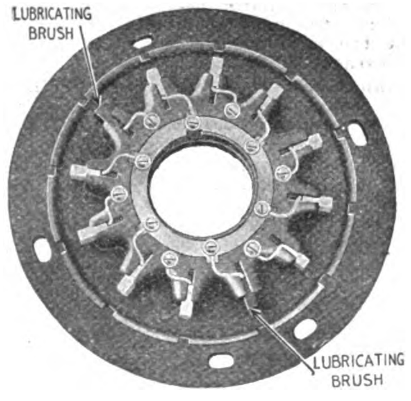
Motor-Dynamo mounted on Ford Car

There is no cotton insulated wire used in its construction, the windings being made with flat copper strips cut to length and formed into hairpin loops, which are inserted through a number of laminated iron discs.

These are then bent into shape by a special machine to make them uniform, leaving the flat ends to weld to the commutator segments. This is done with an electric welder which makes the commutator a part of the winding, thus preventing open circuits. After the armature is assembled it is impregnated with a bakelite and baked, which makes it a solid, homogeneous mass impervious to oil or water and not influenced by temperature. This armature can be shaped to fit frame of any low voltage dynamo using the same sturdy construction.



Hair Pins Shaped to weld on Commutator



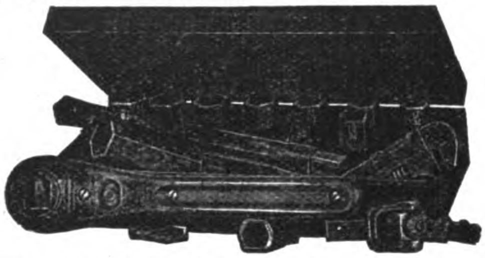
Commutator Brush Assembly

The field frame of the motor dynamo is made of semi-steel and has 12 field poles in which the armature rotates to generate the electric current. The brush assembly is on the back of the motor dynamo front plate. Instead of using two large brushes to carry the starting current, the brushes are in 12 parts to give the "finger" action so desirable for commutator brushes. The starting switch and automatic cut-out is a combined unit.

One of the illustrations shows the hair pins shaped to weld on the commutator, another the commutator brush assembly, and the third the motor dynamo mounted on Ford car.

Manufactured by the Dayton Electrical Manufacturing Co., Dayton, O. Write for literature and prices.

Mossberg "Major" Set. Owners of Ford automobiles will appreciate the Mossberg "Major" wrench set. In it are tools for making all adjustments of Ford chassis, including reversible ratchet handle. With this set the Ford driver may feel safe when out driving, knowing that he is prepared for almost any work of repair or adjustment that may be required.



Manufactured by Frank Mossberg Co., Attleboro, Mass. Prices quoted on request.

Standard Fuel Saver and Decarbonizer. This equipment created much interest at the New York show, resulting in big orders for this and foreign countries. It is so constructed that it can be installed on any car in a short time. Its main feature is the use of an atomizer. A pipe connection leads from the device to the intake manifold of the machine. The natural operation of the engine causes vacuum, which results in the operation of atomizing diaphrams.

The atomizer produces a very thick and finely divided water vapor that is drawn with the fuel into the intake manifold of the engine and thence into the cylinders. Owing to a much richer charge of oxygen in the fuel mixture the gas burns completely and leaves no carbon. For this reason the car owner gets more power with less gasoline consumption. The rich vapor introduced into the cylinders with the fuel is converted instantly into superheated steam. This eliminates carbon, which is ejected to the exhaust pipe.

This cool vapor also reduces the volume of the warm gas mixture from the carburetor and forms a more condensed charge in the cylinders and, consequently, more power is generated.

Tests made by Joseph Tracy, consulting automobile engineer, at the request and for the account of the United States Fuel Administrator, showed a 34% per cent. saving of gasoline on the bench tests.

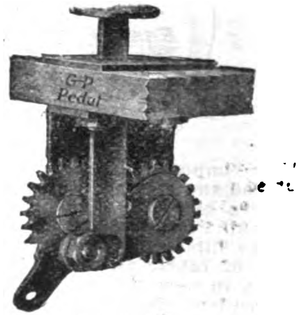
Manufactured by Motor Fuel Saver Corporation, 50 Church St., New York City. Price, $15.

RELIABLE
FIRE
EXTINGUISHER
ALWAYS READY
WILL NOT FREEZE
DIRECTIONS
J. W. STEVENS

The Reliable Fire Extinguisher is adapted for use in all kinds of fires where the quick use of an extinguisher prevents great loss. It is simple in operation and is a non-conductor. The maker asserts that it will not explode or corrode and will throw a stream 30 feet. Its adaptability under all circumstances makes it efficient for extinguishing acetylene, electrical, gasoline, naphtha, oils and varnish fires in either private homes, factories, stores, warehouses, automobiles and motor boats. The extinguishers are made of hard brass in four sizes, as follows: Baby size, one pint, $7; auto size, two pints, $8; motor boat size, three pints, $8; large size, six pints, $12.

Manufactured by J. W. Stevens, Rosebank, N. Y., and distributed by Charles D. Durkee & Co., 2 and 3 South St., New York City. Price quoted at request.

G-P Pedal. The G-P Pedal is made entirely of steel and is strong enough to operate any cut-out spring. It is so designed that by releasing one screw it can be changed to lift or pull in any direction desired. Geared compound leverage makes it easy to operate. This is of particular importance to the motorist, especially when the pedal has to be placed in an awkward position where it is hard to reach. The locking device is on the bottom plate. Thus the pedal can be fastened to a steel or wood floor board of any thickness without altering its throw. It travels in a straight line and needs but one round hole drilled in the floor board.

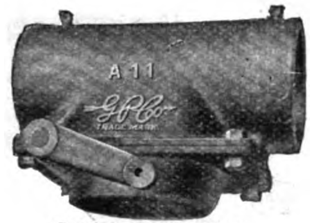


G-P Pedal

Compounding of the leverage and geared parts gives a longer throw and requires less space for installation than other types of pedals.

Edward A. Cassidy Co., Inc., Madison Ave. at 40th St., New York, N. Y. Price, $1.50.

The G-P Muffler Cut-Out is practically designed. The valve tongue and its seat are so constructed that when the cut-out is open the line to the muffler is completely shut off and correct angle is obtained for deflecting the exhaust gases freely without possibility of back pressure. The G-P Muffler Cut-Out is made in two parts, affording quick access to its interior When the cut-out is closed the pressure of the exhaust gases cannot open it. The course which the exhaust gases must take tends to prevent carbon accumulation on the valve or its seat. The area of the sections in every part of the cut-out is greater than any section of the exhaust pipe line; therefore, the relief of the motor is complete and the volume of sound intensified. The G-P Muffler Cut-Out is attached without flanges. The ends are bored to the exact size of the exhaust pipe, with shoulders at each end. A set screw prevents shifting and insures rigidity. Each G-P Muffler Cut-Out is packed in a substantial wooden box, which makes attractive shelf or window display.



G-P Muffler Cut-Out

Manufactured by G. Piel Co., Inc., Long Island City, L. I. Sales department, Edward A. Cassidy Co., Inc., New York City.

Se-Ment-Ol Liquid, a product which will add greatly to the convenience of the motorist, has been placed in the market by the Northwestern Chemical Co., Marietta, O., maker of Norwesco "chemically correct" automotive equipment.

Se-Ment-Ol Liquid contains all the chemical properties of the original powder form, known to 2,000,000 motorists as the radiator cement that "finds the leak and fixes it."

The motorist pours Se-Ment-Ol Liquid into his radiator and drives on, losing no time from business or pleasure, as it is not necessary to lay up the car to allow the repair to set or harden.

The water in circulating through the cooling system carries Se-Ment-Ol to the leak and on coming in contact with the air it congeals and is hardened by the heat from the motor forming an elastic repair which cannot be destroyed by the action of the water or the vibration of the car.

SE-MENT-OL
REG. U.S. PAT. OFF.
LIQUID
Chemically Correct
RADIATOR
CEMENT

It is not necessary to drain the radiator, as Se-Ment-Ol Liquid is absolutely harmless, and if allowed to remain in the cooling system will automatically repair any new leaks that may develop. Tiny leaks are often hard to find and are usually in places where soldering is very difficult.

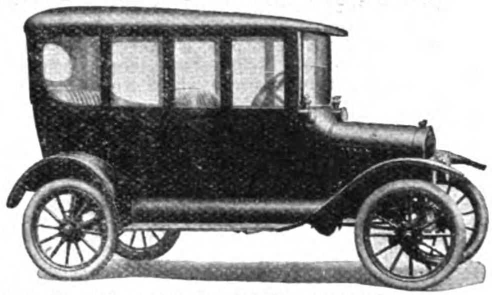
Se-Ment-Ol Liquid not only saves time, but it cuts repair bills. A 75 cent can will repair a radiator holding six gallons of water.

Manufactured by the Northwestern Chemical Co., Marietta, O. Write for literature and prices.

Anchor Demountable Glass Enclosed Tops. Are made for Buick, Overland, Oakland, Dodge, Oldsmobile and Ford cars. The illustration shows the one for Ford touring cars. They add to the comfort and convenience the year around. Anchor Tops are designed to meet the demands of the motoring public for an attractive and well built demountable top that can be applied to the regular touring or roadster body of various standard cars and instantly convert them into comfortable, good looking sedans or coupes. Every motorist is aware of the inconvenience of celluloid curtains that are regularly furnished with his car. Stormy weather is the very time that a car is needed most.

The Anchor glass walls protect from the cold blasts of winter and from exposure to the fall and spring rains. During the summer the sides may be completely removed and a set of curtains used, or for those enjoying motoring with the top down, the Anchor Top has an added feature in that it may be readily lifted off and the touring top again applied.

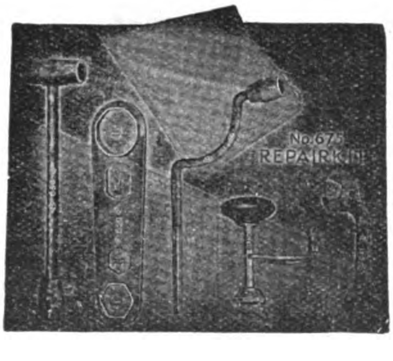
Anchor Tops are strongly constructed throughout, being built of selected hard wood stock, reinforced with pressed steel. The rigid deck and frame of these tops are covered with a high grade luster lasting water proof material, while the sides, including all windows and door sections, are highly finished wood surfaces. Windows throughout are of extra heavy crystal glass. Windows of doors are arranged so that the upper or outer pane slides in a felt lined steel channel, and thus can be raised or lowered as desired.



Special fasteners hold this glass in position desired, thus overcoming possibility of rattle or breakage. Doors open widely, affording easy entrance and exit. An electric dome light furnishes interior illumination, but this feature is not furnished on Ford tops. Anchor Tops are easily installed. Models not listed are made to order.

Made by the Anchor Top and Body Co., Cincinnati, O. Write for literature and prices.

Ford Repairkit. This repairkit combines the special wrenches that are required for adjustment or ordinary repair of any light passenger car, but they are intended especially for use on Ford chassis. Wrenches are exceptionally well made.

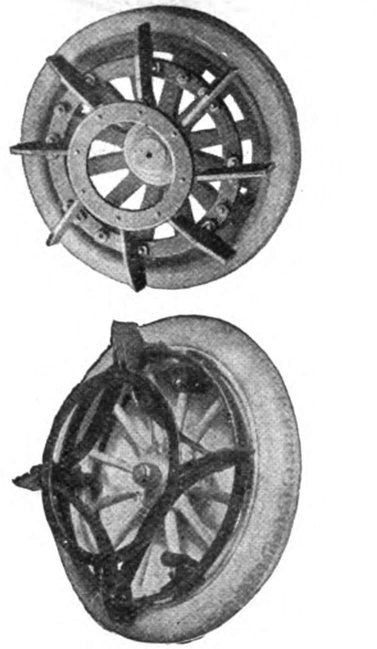


Manufactured by Frank Mossberg Co., Attleboro, Mass. Write for prices.

American Traction Rings. The need of equipment that will insure traction for motor vehicles on ice, snow or mud covered roads, or on soft surfaces, has long been recognized. The American Traction Ring meets this need. It is simple in construction and positive in results, yet economical in price.

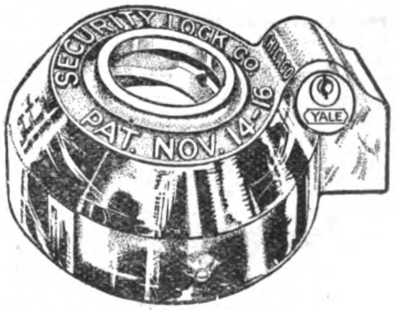
The ring is fastened to the outside of each of the driving wheels. To these rings are attached eight blades, more commonly called "paddles." These blades are set at an angle of 15 degrees so that they may exert the proper pressure, as they come into action below the horizontal hub line. The blades are also fastened to an outside guard ring, the complete device being attached to the wheel by means of bolts fastened to a ring on the inside of the wheel.

The blades do not come in contact with hard road surfaces, and only when the wheels sink into snow, ice, sand, soil or mud do the blades take up the work. Even though a truck should become deeply mired, a plank, rail or heavy chain placed under the blades will give the traction necessary to lift the truck from almost any hole. The device is sold with a liberal guarantee.



Manufactured by the American Traction Ring Co., Inc., White Plains, N. Y. Prices on request.

Security Auto Lock for Fords. This lock makes a Ford car "thief proof." So many automobiles are being stolen every day that the car owner who goes without protection assumes a big risk. With the Security Auto Lock guarding a Ford the car cannot even be towed away. Insurance companies recognize the protection given by this lock, and they make a liberal reduction in insurance rates to car owners who use it.

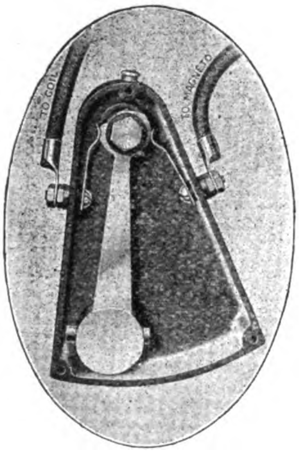


Distributed in New England by Farley & McNeill, 105-107 Federal St., Boston, Mass. Price, $6.

Apco Safety Switch for Fordson Tractors. The Fordson tractor, like all powerful worm driven tractors, is inclined to tip over backward if driven carelessly. The Apco Switch is designed and is guaranteed to prevent an accident of this kind, as it shuts off the ignition current when the front wheels rise to a predetermined height.

TO COIL
TO MAGNETO
APCO
SAFETY SWITCH

It is constructed on the pendulum principle, which cannot fail to operate, and at the same time it will not swing and break the circuit when the tractor is going over uneven ground. It is located near the magneto plug at the side of the engine and held by two of the crank case bolts.



The installation is simple. The material is malleable iron, brass and the best bone fiber for insulating. The finish is Fordson gray and when installed it looks as if a part of the regular equipment. The weight, ready for shipping, is five pounds.

Made by Apco Manufacturing Co., Providence, R. I. Price, $6.

The Universal Battery Charging Clips are for use as a quick and ready means of connecting storage batteries for charging. They enable one to charge lighting and starter batteries without disconnecting them from the car. Being made with spring jaws fitted with sharp teeth, they bite through dirt and corrosion on terminals and make contact with the metal certain. The trouble caused by loose connections is eliminated with this form of contact.

Manufactured by R. S. Mueller & Co., 424 High Ave., Cleveland, O. Price quoted at request.

Retlaw Ford Car Gauge. A gauge by which is indicated the number of gallons of gasoline in the tank is a convenient and time saving accessory for any car. Not only handy, but also very practical for determining the actual mileage made upon a certain consumption of gasoline; an important item to watch now that fuel is so high. The Retlaw gasoline gauge for Ford cars is designed to fill this want. This gauge consists of a float mechanism suitably linked to a dial upon which is plainly marked a scale in gallon units. The gauge is very easily and quickly applied and when in place forms the filler cap.

Manufactured by Retlaw Manufacturing Co., 812 Woodbridge St., East, Detroit, Mich. Price in U. S., $1.

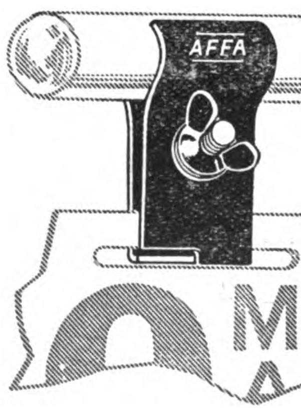
Leak Proof Cement is a Blue Ribbon product that is different from the ordinary preparations of this kind. It acts quickly and stops leaks without any danger of clogging the radiator system. When poured into the radiator the cement dissolves thoroughly, and as the solution comes into contact with the air at any leak it immediately closes the opening and mends it by forming a permanent and lasting cement filling. This cement cleans out the circulating system and prevents scale and rust from forming. This preserves the metal and increases the cooling efficiency.

RIBB
RADIATOR
LEAK PROOF
CEMENT

Manufactured by the International Metal Polish Co., Inc., Indianapolis, Ind. Prices, 75 cents for seven ounce can; 25 cents for 2½ ounce can.

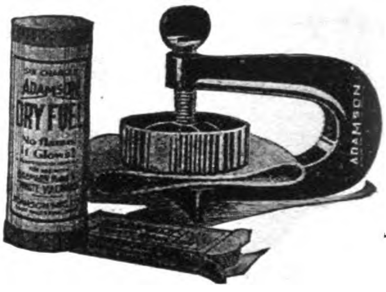
Affa License Plate Holder. This is the latest addition to the line of the Affa Specialty Co., Worcester, Mass., which company makes the well known line of Affa Anti-Rattlers for Ford cars.

The License Plate Holder fits all sizes of tie rods on any car, and clamps the license plate very firmly, yet with sufficient flexibility in the material to allow it to spring just enough to make a long, flat contact, thus preventing any vibration or whipping motion. It will hold the plate either above or below the supporting rod. It is made of pressed steel, finished in black enamel, and is sold under a liberal guarantee.



Manufactured by the Affa Specialty Co., 34 Southbridge St., Worcester, Mass. Price, 50 cents per pair, delivered.

Adamson Vulcanizer. An entirely new and improved feature in portable vulcanizers is the use of the new dry fuel in the Adamson model "E" outfit for repairing tire punctures. It consists of a powdered dry fuel, which when poured from the measuring cup into the receptacle and ignited burns with a hot glow without flame, vulcanizing the patch permanently.

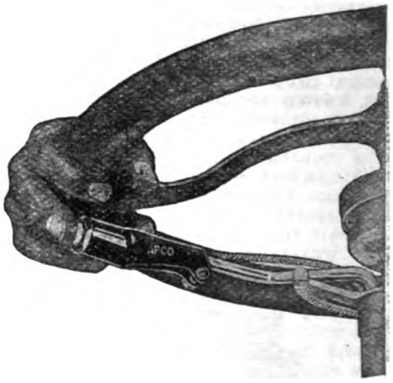


The outfit includes vulcanizer, can of Adamson dry fuel, a box of 12 patches, measuring cup, sandpaper and directions.

While serving its purpose as well as any of the large outfits for vulcanizing, it is much handier and efficient, as it can be packed away in the car among the tools or in any small space and is ready for use at an instant's notice. With such a device in the tool kit the motorist can cease worrying about possible punctures.

The Adamson Mfg. Co., East Palestine, O. Price, $1; extra box of patches, 25c; extra can of dry fuel, 50c.

Horn Button. The horn button on a Ford car is located at the front of the steering column, where it is hard to reach. A more unhandy place would be hard to find. The new Apco Button is attached to the throttle or gas lever, where it is under the driver's finger at all times, and the horn can be sounded easily and quickly even with heavy gloves on.



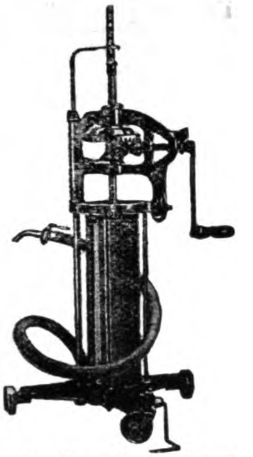
It consists of the button, bracket and wire ready to attach. To install, simply attach the bracket to the lever, connect the wire to the wire removed from the old button, wrap joint with tape and the job is done. Each button is packed in a box weighing two ounces.

Manufactured by the Apco Manufacturing Co., Providence, R. I. Write for prices.

Greenleaf Auto Polish. This may be used on various parts of the car, body, fenders, hood, windshield, headlights and metal trimmings. The expense of repainting a car may often be delayed or avoided by the use of Greenleaf Polish. It restores the original beauty to all surfaces and leaves a clean, dry finish, lustrous and durable, to which dust will not adhere. Greenleaf Polish may be used with a sprayer if desired.

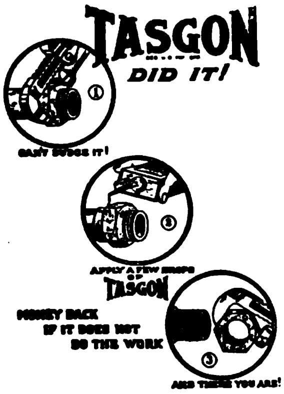
Manufactured by the Greenleaf Products Co., office and laboratory, 63 Northampton St., Boston, Mass. Distributed nationally by Farley & MacNeill, 105-107 Federal St., Boston. Price: Pint, 60 cents; quart, $1; gallon, $3; trial size, 25 cents.

The Ekern Portable Garage Grease Gun consists of a heavy seamless steel cylinder mounted on three wheels, having five feet of hose attached to the bottom of the cylinder, with shut off valve and nozzle at the end of hose. It registers and measures accurately the amount of grease put in the gear case or differential, and will work equally well on liquid oil as well as hard grease. It is equipped with two sets of gears. When the crank is pushed in it disengages the low gear and immediately engages the high gear, which operates the piston either up or down at high speed. The cylinder is 20 inches long by six inches in diameter, capacity 20 pounds of grease or 2½ gallons of oil. The piston is covered with best quality cup shaped leather and is provided with an expansion ring in piston, which prevents any grease or oil from leaking by. The piston also has an automatic air vent, which releases the vacuum in the cylinder when cranking the piston up for refilling. The base is provided with a step lock which lifts the castor up off the floor and sets the gun rigidly while cranking.

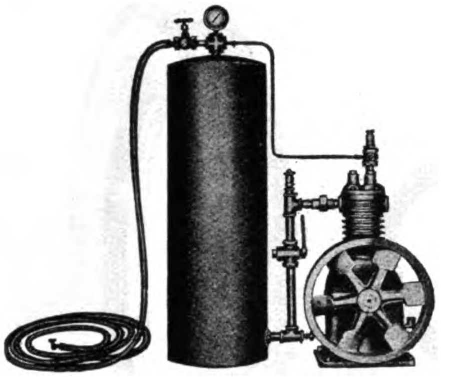


Manufactured by H. G. Paro, 1410-12-14 S. Michigan Boulevard, Chicago, Ill. Price, $47.50.

Tasgon. This is known as "The Magic Fluid of Many Uses." A few drops of this fluid will loosen rusty nuts, bolts and connections of all kinds. It finds a ready welcome in garages and service stations, and with automobile and motor boat repair men and automobile owners. Tasgon loosens the rust scale, lubricates the parts and makes disconnections easy. Fittings that are rusted, corroded or otherwise stuck can be easily removed by it. Tasgon will not injure metal. Tasgon is especially valuable for trucks and tractors, as it will prevent laying up the truck or tractor for repairs, also delay in waiting for new parts. Tasgon saves the old parts. A can of this in the tool kit is very valuable. Tasgon prevents carbon from collecting, stops squeaks in springs and starts a cold motor.



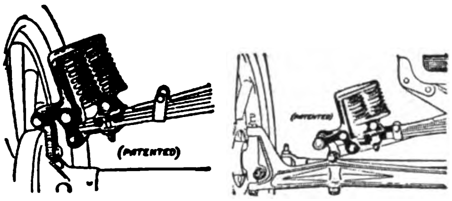
Manufactured by Samuel Cabot, Inc., Boston, Mass. Distributed by Polygon Products Co., 141 Milk St., Boston, Mass. Price: Half pint, nozzle top, 60 cents; pint, $1. Also sold in quarts and gallons.



New Style "S" Curtis Outfit. This includes an air compressor with hand unloader and tight pulley, welded steel pressure tank with air gauge, drain cock and pop safety valve. The piping between compressor and tank is made specially substantial and of convenient patterns to save floor space and prevent breakdowns and trouble. It has an outlet cock made in five different sizes, up to the usual Curtis standard of excellence, and is ideal for those seeking a complete outfit at a minimum outlay, for it will deliver more air than some portable machines that cost from two to three times as much.

Manufactured by the Curtis Pneumatic Machinery Co., St. Louis, Mo. Write for booklet and prices.

Champion Shock Absorbers for Ford Cars. The "Champion" is a new spring suspension which absorbs the jar and rebound. It is fast becoming popular with Ford owners, as it does with great efficiency the work for which it is designed. It is simply attached. The centrifugal forces throw the jars on the absorbing device, which simultaneously accomplishes the shock absorbing task by the pivoted bearing allowing free rolling oscillation in control by two coil springs. The free semi-rotary motion for the absorber construction is an important feature. The device is directly attached to the automobile wheel. The illustrations show front and rear absorbers.



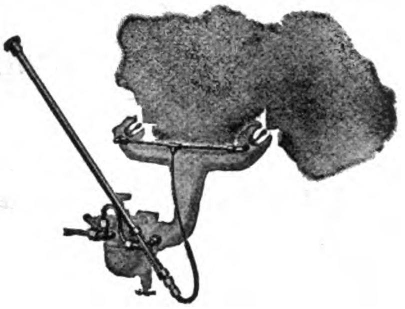
Manufactured by the Champion Shock Absorber Sales Co., 918 North Senate Ave., Indianapolis, Ind. Price quoted on request.

Rim and Gasket Shellac, a Norwesco specialty, is a refined product of the highest quality and will give the best results with gasket joints. It should be applied generously to both surfaces, great care being taken to see that the gasket surfaces and edges are perfectly coated. It is particularly useful on engines which have removable cylinder heads. It dries quickly and seals the joint perfectly.

Manufactured by the Northwestern Chemical Co., Marietta, O. Price, two-ounce swab bottle, 20 cents; half pint cans, 50 cents; pint cans, 75 cents; quart cans, $1.25; gallon cans, $4.

Liberty Starting Primer. This may be installed on any Ford car, truck or tractor. It does not interfere with any part of the motor or dash. The primer is guaranteed to turn over the motor by combustion in each cylinder in rotation on the first turn of the engine by hand crank or by any starter at any temperature to 20 degrees below zero. It is a fuel and battery saver, as it obviates running the engine unnecessarily. It saves the batteries from extra starting work. The primer prevents the engine stalling when on a grade.

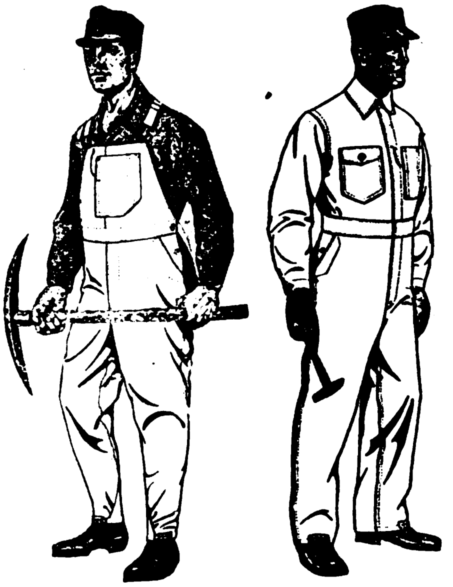
Vaporization is produced by a quick thrust on a push button on the dash. This operates a high pressure force pump, throwing the fuel, gasoline, kerosene or distillate, through a patented atomizing nozzle with such force that the manifold and ports are filled with suspended vaporized molecules of fuel of highest combustibility.



In ordering if car is not equipped with a standard Ford carburetor or manifold, it is necessary to specify name of the carburetor and manifold.

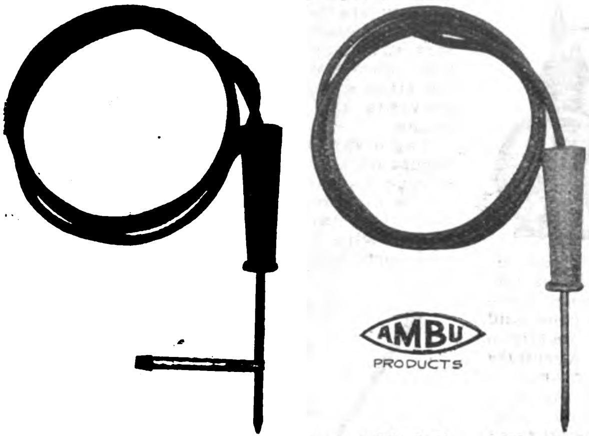
Manufactured and distributed by the Liberty Primer Co., Inc., 676 Woodward Ave., Detroit, Mich. Price, $8 complete; installed, $9.50.

Kenworth Men's Overalls. These are very suitable for the mechanic working in the garage or service station. The famous "Governor Fastener" is an attachment at the bottom of the legs which has been approved by the safety engineers of a number of the largest plants in the country. Kenworth Overalls are made for service and safety. All strain points are reinforced, the seams are strongly stitched and the button holes are well made. They have riveted buttons. There are eight serviceable pockets. The material is the best blue denim, khaki, Stifel stripe and white drill. The workmanship is excellent. The Kenworth products include one-piece suits, bib overalls.



Made by the Kenilworth Manufacturing Co., Inc., 7 East 17th St., New York City. Write for literature and prices.

Cadmium Test Set. You may have made tests of batteries that have seemed to be reliable, but do you realize that even though voltage or gravity may be satisfactory, yet the battery capacity may be low? The reason for this is that either the positive or negative plates may not be charging or discharging properly. The

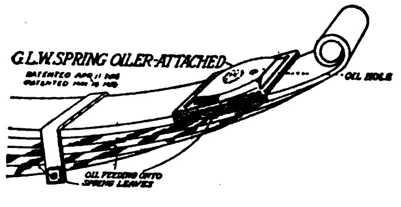


result will be that the voltage will fall rapidly during discharge and the capacity of your battery will be greatly reduced.

A test by means of the use of cadmium can be made of each plate, separately, to determine their condition. The efficiency of this test has created such a demand for a means of conducting it easily that the American Bureau of Engineering, Chicago, has devised the cadmium testing set illustrated herewith. It consists of two leads of insulated wires, five feet long, attached to two wooden handled brass prods. On one of these prods is attached a piece of cadmium with a rubber tip. This set can be used either with the Ambu Trouble Shooter or with an ordinary voltmeter if finely calibrated.

American Bureau of Engineering, Inc., Battery Division, 1018 S. Wabash Ave., Chicago, Ill. Price, together with full instructions, $3 f. o. b. Chicago. Shipping weight one pound.

The G. L. W. Automatic Spring Oilers consist of a high grade felt pad with an oil reservoir, contained in a rust proof polished blue metal case. This case snaps over the main leaf of the spring and is so constructed that different degrees of pressure is brought to bear on the felt pad, making the ends perfectly tight and oil proof, thus keeping the top surface of the main spring perfectly clean. At the sides the pressure on the felt is such that it permits a very slow seepage of oil, which fills the grooves along the entire side and is carried between the leaves by capillary action. Engineers are universally conceding that a large per cent. of automobile trouble is due to imperfect lubrication of spring and modern machines are being fitted with spring lubricating systems. This being the case, it is therefore practical that every operator fit his automobile spring sets with some sort of spring lubricating device. The manufacturers of this accessory allow a 30 days trial, with money refunded, if not satisfactory, and in addition to this make a sweeping guarantee to replace any spring on any automobile, if broken after a set of G. L. W. automatic spring oilers has been in use on the car springs three days.



Marketed by the Hudson Sales Co., factory branch G. L. W. Spring Oiler Co., 7 East Jackson boulevard, Chicago, Ill. Price 20 cents each.

GENERAL CORD

The General Tire. Every ounce of rubber, every inch of fabric for the General Tire is selected and tested for quality. Every measurement is true to the thousandth of an inch.

Three groups of General tires are made —the General Cord Tire, the General Fabric Tire and the General Jumbo Tire.

The General Cord Tire has made a most enviable reputation for itself. The General Fabric Tire is the tire that made its manufacturer famous. The General Jumbo Tire is the oversize for Fords, Chevrolets and other light pleasure cars, with 30x3½ rims. It has the big air space of a 31x4.

Manufactured by the General Tire and Rubber Co., Akron, O. Prices quoted on request.

The Conaphore is a solution of the headlight problem, which adds to the bulb and the reflector a third part. The function of the Conaphore is to direct the rays of light from the bulb and the reflector so that the beam will have a long range, will not glare and will pierce fog or dust.

The Conaphore is an entirely new scientific headlight glass. It is the result of three years of experimentation. It is unlike any no-glare lens or dimmer device. Both design and material are new inventions and are fully protected by patents.

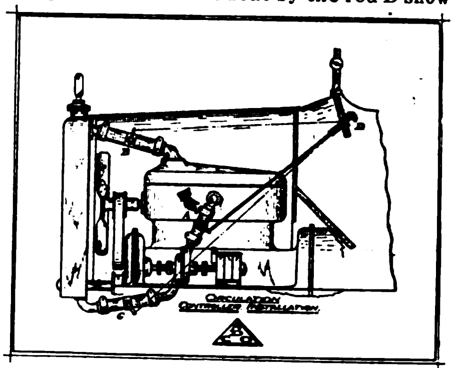
The Conaphore has a smooth outer surface and a series of patented horizontal corrugations on the inner face. These corrugations bend down the light rays and shoot them out in a long, intense beam.

The Conaphore is made of Noviol Glass (a patented yellow tint glass) which absorbs the blue and violet rays. The beam of light transmitted by this glass eliminates back glare and penetrates fog or dust.

Manufactured by the Corning Glass Works, West Corning, N. Y.. Prices, $1.30 to $4 per pair.

Temperature Control for All Cars. Realizing the necessity of controlling the temperature of an engine to obtain proper operation and economical running of automobiles, trucks and tractors, particularly with the lower grades of fuel that have to be used, the Automotive Devices Co. has marketed a neat and efficient device for controlling the circulation of the water to regulate the temperature of the engine.

It permits the motor to reach 150 degrees temperature in two minutes after starting, because only the water within the motor has to be heated, and it can be regulated from the seat by the rod D shown



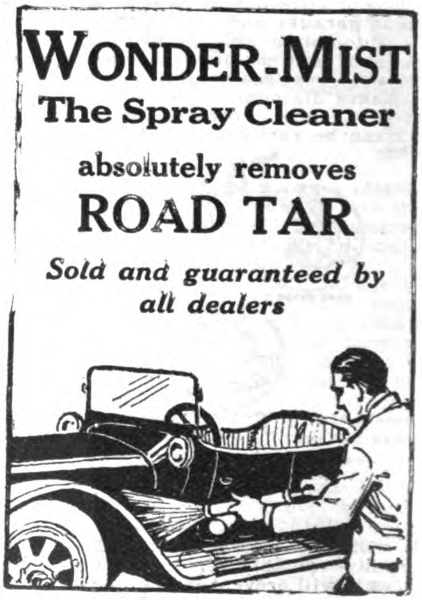
in illustration to control the temperature to any desirable degree regardless of atmospheric conditions.

Its use in conjunction with a motometer is ideal. The motometer indicates the temperature and the controller regulates the circulation in accordance with desire.

The controller is easily installed on any car. It may be placed in the hose pipe in positions A B or C, as shown in illustration, the rod leading to the instrument board at D. It is necessary to state the inside diameter of the water hose when ordering.

Manufactured by the Automotive Devices Co., 98-102 Randolph St., Detroit, Mich. Price, $5.

Wonder-Mist is used with a spray when cleaning automobiles. It cleans the car of all dust, mud and grease, without water and without danger of scratching. The sprayer application is simple and easy. Wonder-Mist does not injure the finish. It contains no acid, alkali, gum or wax. It is non-combustible and non-poisonous. It feeds the finish, keeps it flexible and lustrous under all conditions. Its protecting film prevents rain streaking, mud spotting and dullness.

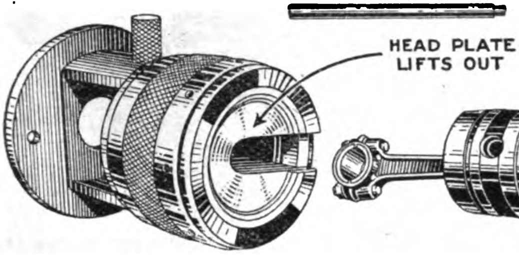


WONDER-MIST
The Spray Cleaner
absolutely removes
ROAD TAR
Sold and guaranteed by all dealers

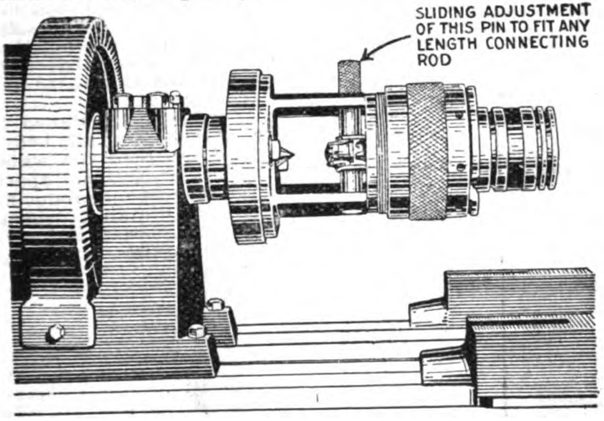
Soap and water ruin a car's finish. Car washing is a dirty, disagreeable drudgery when done in the old way, but it is made simple when done with Wonder-Mist.

Made by the Wonder-Mist Manufacturing Co., 309 Washington St., Boston, Mass. List prices: Gallon can, $3; ½ gallon, $1.75; quart, $1; pint, 60 cents; ½ pint, 35 cents; sprayers, 50 cents each.

Time Saver Piston Chuck. Every intelligent automobile engineer and repair man knows that the eccentric as well as the concentric piston rings wear the grooves in the piston after the engine has run from six months to one year and that retruing the grooves is absolutely necessary if new rings are to give satisfaction.



To do this without removing the piston pin and the connecting rod from the piston—to do away with the time wasted in truing each piston separately in the lathe chuck, and to do away entirely with the chance of cracking the piston while chucking it, which when it happens knocks all the profit out of the job. To do away with all of these difficulties and expenses is the function and purpose of the Time Saver Piston Chuck.

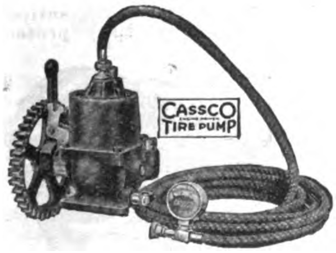


The Time Saver Piston Chuck will hold any size piston and connecting rod and in addition it is so constructed that rough cast pistons can be turned on it. No time is lost in truing the Time Saver Piston Chuck in the lathe, it being so made that when clamped to the face plate it will run dead true.

Manufactured by the Time Saver Piston Chuck Co., St. Louis, Mo.

Cassco Engine Driven Tire Pump. This pump is simple and scientific in design. It takes up little space, and is easy to install. The air from the Cassco pump is dry and clean. The design of piston and cylinder prevents oil spray. The pump will inflate a 34 by four-inch tire to 80 pounds pressure in 90 seconds.

It is hard, dirty, tiresome, back-breaking job to inflate a tire with an ordinary hand pump, and it is not efficient either. Rather than undergo the work, an autoist is inclined to cut the job as short as possible and the tires are not properly inflated. The Cassco engine driven pump saves this energy and time, and pumps tires quicker and better than one can possibly pump them by hand.



Edward A. Cassidy Co., Inc., Madison Ave. at 40th St., New York, N. Y. Price, $15; special outfit for Ford cars, $10.

FIRE-FLY
FIRE

Fire-Fly is a chemical fire extinguisher that not only puts out the fire quickly, but cannot damage the machine. It is a dry powder and contains no grit to cut the bearings of the engine or other working parts.

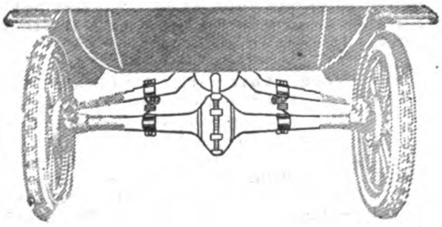
Manufactured by the Northwestern Chemical Co., Marietta, O. Price, tubes, 2x12 inches, 50 cents; 2x22 inches, 75 cents.

WASTE CAN
COVER
SHOWING SPRING
PAT. OCT. 12, 1909
SAFETY
OILY WASTE CAN

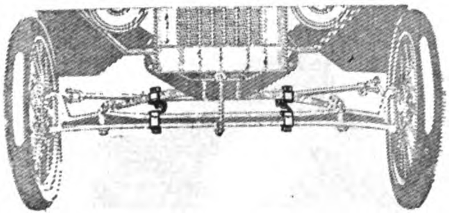
Safety Waste Can. The question of fire hazard in a garage is an important one, and it is the owner's duty to reduce it to a minimum by doing all in his power to prevent careless disposal of oily waste. The illustration shows the Dover Safety Oily Waste Can. These cans are made of heavy galvanized iron and by a special process of construction there are no soldered joints. The cover is held closed by a patent self-closing spring which, it is said, is not susceptible to wear. This can may be obtained in either a round shape or half round.

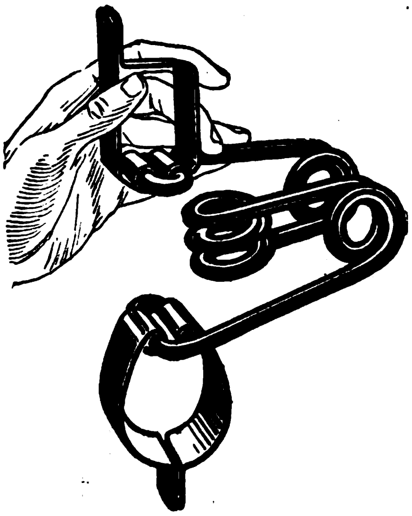
Manufactured by Dover Stamping and Manufacturing Co., Cambridge, Mass. Prices range from $2 to $13.12, according to size.

Stopshocks for Ford Cars. The Stopshock is a new device for Ford cars that is claimed to eliminate side sway, jolts and road shocks, makes steering easier and driving safer. A set of four Stopshocks—two in front and two in the rear, located between the springs and axles, govern the action of the springs, protect them from breakage and absorb the jars and jolts. They snub the rebound and make a Ford ride as comfortably at 25 or more miles an hour as at 12. They cushion the sudden downward drop, reduce the wear on the motor and axles, prolong the life of the car, give more mileage to the gallon of gasoline and increase tire mileage.



Many Ford owners who have equipped their cars with Stopshocks are more than pleased. The K-S Supply Co., manufacturer of Stopshocks, is arranging for distributors throughout the United States to supply the demand for this popular device.





Manufactured by the K-S Supply Co., 415 Fisher Bldg., Chicago. Price, set of four Stopshocks, $7.50.

IT'S A LONG
TALE
BUT I'LL CUT
IT SHORT
MOCO
MONKEY GRIP
IS THE WORLDS BEST
TIRE PATCH!
MOCO
MONKEY GRIP

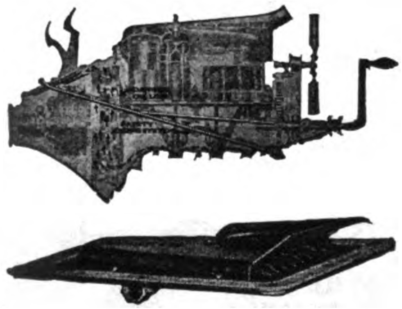
Moco Monkey Grip Tire Patch has had a wonderful sale. The manufacturers say it has been recognized by the government as a standard tube repair method and is being used for repairing punctures, blowouts and holes in tubes in practically all the cantonments, and that it was adopted after tests had been made of 67 cold patches and tube repair methods.

Manufactured by the Moco Laboratories, Oklahoma City, Okla., and Mt. Vernon, Ill. Distributed by Farley & MacNeill, 105-107 Federal St., Boston, Mass., in northeastern states, the firm being sole distributor in New York, New Jersey and New England. Prices: Small size can, 3x18 sheet, $1; large size can, 6x18 sheet, $1.75; casing patch, 6x18 sheet, $1.75.

Pedex, a pedal extension device, makes it possible for two persons of different height to drive the same car with equal comfort. Pedex is designed to be attached to both the brake and clutch pedals, and the use of the permanent pedals is in no way impaired. Two adjustments are possible, so that the foot may be placed in a position of greatest comfort. In touring this article is a great help to the driver, making it possible for him to rest his feet by shifting to a new position.

Manufactured by American Car Accessories Co., 529 West 21st St., New York, N. Y. Price, $5 per pair.

Safety Oiling System for Ford Motors. This system is designed to eliminate all foreign matter from the oil, prevent chattering on low speeds and when using foot brake and stop wear on transmission linings. It cools the oil, because the pipe which carried oil to front of motor is outside. It sends a stream of oil on the transmission and brake bands and keeps the flow of oil to capacity of pipe at all speeds.



By disconnecting the pipe at the bottom of crank case one can tell instantly if it is working. The system is said to keep up oil circulation on half the quantity by regular system, even on the steepest hills.

Patented and manufactured by Chas. Kralicek & Co., Cleveland, O. Distributed by the M. & M. Co., 500 Prospect Ave., Cleveland, O. Price, $5.

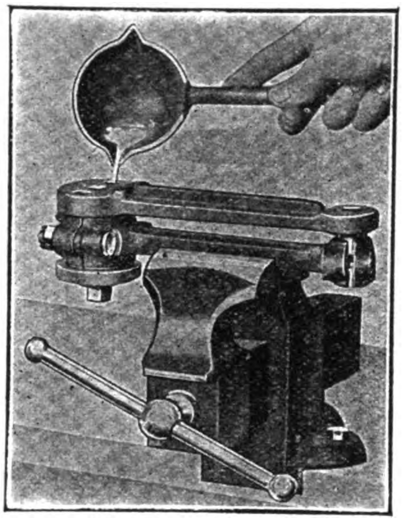
Tarr-Gon. This is a tar and asphalt remover for automobiles. It quickly removes tar, asphalt, grease and stains from bodies, mudguards and tires, making them look like new. It cleans, brightens and preserves leather cushions, straps and tops, linoleum, rubber and metal running boards. It cleans windshields, headlights and reflectors.

Tarr-Gon will remove tar and grease from carpets, rugs, upholstery, shoes, clothing, metals, etc. It dries quickly and collects no dust. Spots and splashes of road oil and asphalt have ruined the costly finish of thousands of automobiles. They can be readily removed with Tarr-Gon without damage to the finish, fabric or texture. Even spots that are ground in, mud freckles and surface scratches that appear to be permanent, will disappear with Tarr-Gon.

Made by Samuel Cabot, Inc., Boston, Mass. Distributed by Polygon Products Co., 141 Milk St., Boston, Mass. Prices: Half pint size, 60 cents; quart sizes, $1.50.

Tribune Babbitting Jig for Ford Connecting Rods. Every progressive dealer has many calls for Ford connecting rods to replace those with worn bearings. Every time you "scrap" a Ford connecting rod because it has a burned or worn bearing, you throw away a dollar or two. The Tribune Ford Connecting Rod Babbitting Jig in the hands of the average mechanic will rebabbitt four or five rods an hour. A little time, a few cents worth of babbitt, and the job is done.

In the Tribune there is a plug at the lower end, which represents the crankshaft, and the casting is machined to accurately cast a bearing exactly of the proper dimensions. At the upper end of the casting there is a plug which represents the piston pin just as it is in the motor. Nothing is left to the eye or guess. As rods vary in length this piston pin plug has a nut on the bottom and the hole is large enough to permit it being moved lengthwise. The nut and thread on the pin are not shown in the illustration.



This is the way it works: Remove cap on large plug. Slip rod over both plugs. Extend shims so rod is centered sideways. If necessary, move small plug to center rod lengthwise. Replace cap, pour bearing. It must be accurate, both ends of the rods being held as in the motor.

Manufactured by the Tribune Engineering Co., Inc., Owego, Tioga Co., N. Y. Price, complete tool, $1.50. Special babbit for Ford rods can be supplied. Write for price.

New York Automatic Headlight Controller for Ford cars eliminates trouble of varying light given by the car headlights. The Rear Light Controller consists of an arm which is attached by means of a stud to the base of the device. To the lower end of the swinging arm is attached an aluminum disc, which when in position on the engine is about eight inches back of the fan. The base is fitted with three contacts, over which the swinging arm travels. When the engine is started the arm, by spring tension, is brought to the first contact and only the left headlight receives current. The total current from the magneto is sufficient to illumine this single headlight to its full candle power. As the engine speeds up the air current, acting on the swinging arm disc, carries it to the second contact and both bulbs receive current. Should the engine speed increase still further the arm would contact with the third connection and a resistance coil introduced into the circuit, preventing the burning out of the lights from excessive current.

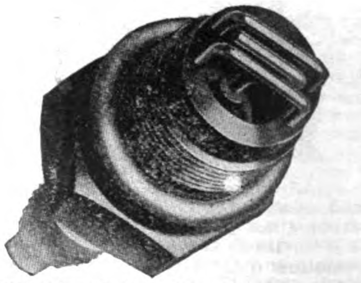
Manufactured by New York Coil Co., 338 Pearl St., New York, N. Y. Price, $5 complete with wiring.

National Spark Plugs are designed especially to meet the demand for an efficient spark plug, with big spark power electrodes that will ignite low grade fuel satisfactorily. The patented one-inch firing surface gives seven to 10 hot, fat sparks, so powerful and intensely hot that they will ignite the fuel instantly. Carbon troubles are practically eliminated and there is a great economy of fuel.

The heavy firing wires are designed to give satisfactory service for all heavy duty requirements of air, land and water service. A recent test of National spark plugs by one of the largest oil producing companies in the United States, demonstrated that the National was the only spark plug that "stood up" under the heavy duty requirements of a Casinghead engine. As a result of this test this spark plug was adopted exclusively for use in all its plants throughout the United States.

After rigid competitive tests by ignition experts National spark plugs have been so lected for use in marine motors, aeroplanes, automobiles, trucks, tractors and stationary engines.

National spark plugs are entirely different from any other type of spark plug and are constructed on an entirely new principle of ignition, fully protected by basic patent.



Manufactured by the Bergie National Spark Plug Co., Rockford, Ill., which will mail to any motor user a copy of the interesting folder "Big Power Spark Plugs" and descriptive literature with prices.

BURD
STEP JOINT
QUICK SEATING

Burd Quick Seating Rings. This piston ring is made expressly for replacement work. The rings are individually cast and ground—not turned—and the surfaces channeled. It is a quality ring for old motors which gives results immediately. There is now slow process of wearing down to a proper seat. Repair men and dealers in general are bound to be especially interested in these rings.

The Arrow Specialty Co., 16 West 61st St., New York City. Write for prices and literature.

Leather and Pantasote Top and Upholstery Dressing, a Norwesco specialty, makes tops look and wear like new. It waterproofs and preserves the material and gives a desirable egg shell, flat black finish of great durability. It is very elastic and does not chip or flake. It is excellent for upholstery, renewing the finish and improving the wearing qualities of the material. It will not rub off on the clothes. The dressing is easy to apply. It dries quickly, leaving an even, uniform surface, free from brush marks.

LEATHER AND PANTASOTE
TOP AND UPHOLSTERY DRESSING

Manufactured by the Northwestern Chemical Co., Marietta, O. Price, pint cans, 75 cents; quart cans, $1.25.

Utility Black. This is a Norwesco specialty that is just the thing for touching up scratches or places where the enamel has chipped off fenders, body, lamps, engine, hood, radiator or any other painted part of the car. Utility Black is easy to apply and dries hard and glossy in one hour. When used on the engine the heat bakes the finish, producing a hard surface easily kept clean.

UTILITY BLACK
AIR DRYING ENAMEL

Manufactured by the Northwestern Chemical Co., Marietta, O. Price, half pint cans, 60 cents; pint cans, $1.

Gastine. This is a gasoline economizer and is designed to prevent the formation of carbon and reduce upkeep expenses. It works on the principle that "an ounce of prevention is worth more than a pound of cure." Gastine is a highly concentrated composition of volatile and essential oils of well known solvent qualities, compressed into tablet form, readily dissolving in gasoline and takes immediate action on the gasoline.

It is sold under guarantee not to contain anything in its composition that is in any way injurious or detrimental to any metal or to the finest mechanism of any motor, carburetor or a vacuum feed system, any more so than good gasoline would be.

Gastine has been indorsed by the National Ford Owners' Club of New York City.

Made by the Gastine Co., Bridgeton, N. J. Price, 100 tablets, $1.

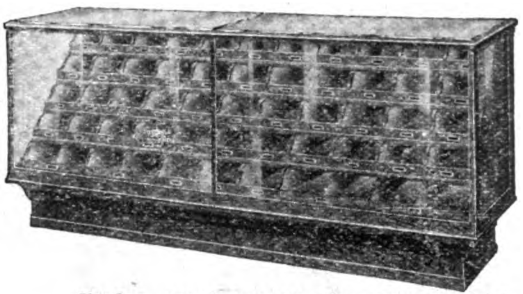
The Tong-Em-On Vulcanizer consists of a nickel plated vulcanizing tong, two copper pans—puncture and blow out sizes—and one dozen "Risk's Riskless" perforated fuses and patches.

To use, simply roughen the surface of the tube thoroughly, peel off one of the gum patches from the stack and stick it to the bottom of pan. Remove the cloth and pull the tong tight, sliding the floating rivet back in slot to hold tong closed. Put two of the patented fuses into the pan and light with a match. The whole process requires but five minutes time and the makers claim a permanent repair is the result.

Manufactured by the Tong-Em-On Vulcanizer Co., 626 Plymouth Building, Minneapolis, Minn. Price, $1.75.

Special Accessory Show Case. Always has it been a question among accessory dealers to know just how to properly display their merchandise. There is no doubt about the productiveness of good display cases. It has been demonstrated in practically every other retail business, but for some reason or other accessory dealers have not, as a general thing, considered the matter so seriously. But if it is beneficial to attractively display cigars or socks, for example, surely it must be the logical thing for dealers to do.

It is said that 80 per cent. of all retail sales are the result of displays. In recognition of this fact, the Detroit Show Case Co. made a thorough investigation of the display requirements of accessory dealers and as a result designed the case shown here.

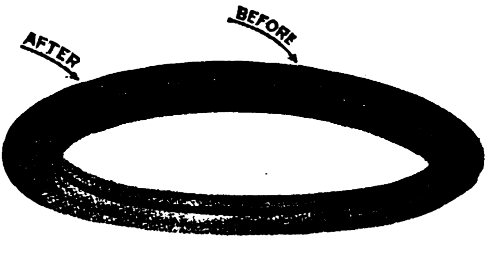


It contains from 35 to 70 drawers of various sizes, the number depending upon the length of the case. A few of the larger drawers have removable partitions for the display of larger articles.

This case is not only attractive, but it helps to keep the stock clean, bright and fresh and makes it easy to keep a close watch on it. Each drawer has a bronze pull and card holder. Dealers who now use this case recommend it highly.

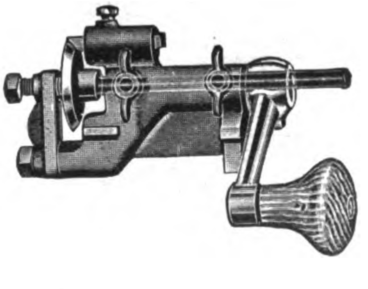
Manufactured by Detroit Show Case Co., Detroit, Mich. Write for literature and prices.

Treado is a prepared rubber for mending tires and rebuilding worn treads, fills small and large cuts, forming a durable rubber tread. It requires no experience to apply and dries in from 10 to 15 hours. It is also used for mending leaky rubbers, rubber boots, rubber soles and heels and will resole or repair leather and fiber soles. The cut to be repaired is first cleaned with gasoline and roughened with a knife and the Treado is spread into the opening with a knife, making a permanent repair.

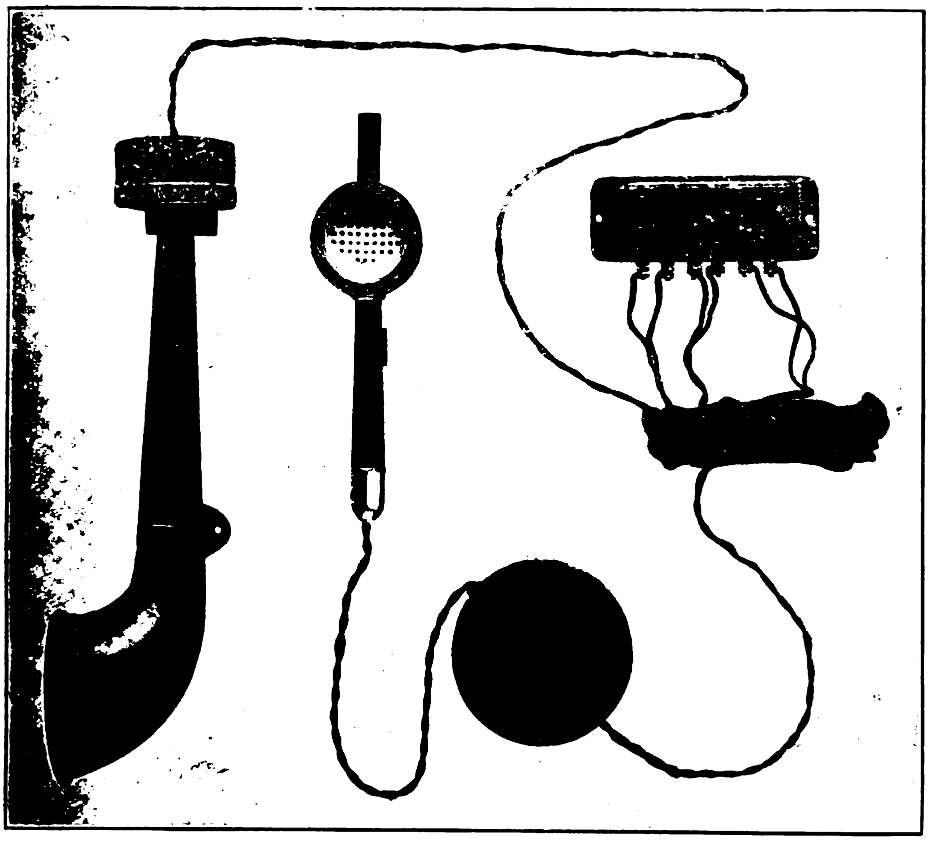


Manufactured by the Treado Manufacturing Co., 42 Dwight St., Springfield, Mass. Prices for tires, 50 cents a can. Leather, 50 cents a can. Rubbers, 40 cents a can.

Sioux Valve Refacing Tool. This removes all carbon pits and other irregularities from the valve face. It makes the face at an accurate angle and perfectly centered. It does for the valve, in a few minutes, what takes hours of work by old methods. The construction and operation is simple. The cutter is made of the best kind of tungsten steel, hardened and tempered to stand hard service. It locks into a vise and can be made ready for use in an instant.



Manufactured by Albertson & Co., Sioux City, Ia. Price, No. 304 complete with 45-degree cutter, $6.



The Autophone, the latest addition to the famous line of Klaxon automobile accessories, is a telephone system for communication between the passengers and chauffeur. It is used in both closed and open cars. The voice of the speaker is magnified seven times, and can be heard by the driver in the noisiest streets. The vibration of the car does not in any way interfere with the clearness of the sounds.

The Autophone differs vastly from other instruments used for similar purposes. The occupants of the car can give instructions to the chauffeur without raising the voice or leaning forward from the seat. The transmitter is attached to a cord, which is taken care of by an automatic cord winder when not in use. The Autophone can be used anywhere in the car with equal ease. It is connected with the battery of the car and is always in working order, there being no dry cells used.

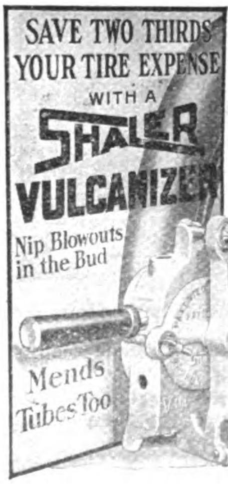
The receiver is made in many beautiful and novel designs to harmonize with the interior fittings or upholstery of the car. One design of transmitter is concealed in a hand mirror, another forms part of the decoration of a flower vase, from which it is removed when in use.

The receiver or horn is placed near the driver's head, where he can hear instructions without changing his position or turning his eyes from the traffic. In open cars it is inserted in the dash board or attached to the steering column. This feature of the Autophone is much appreciated from the point of safety.

The entire equipment consists of a tiny receiver, a small transmitter and a few feet of cord. It can readily be connected with the other regular electrical equipment of the car, or with any six or 12-volt storage battery.

Manufactured by the Klaxon Co., Motor Equipment Division, Detroit, Mich. Write for prices and literature.

Shaler Popular Vul-Kit. The sales of this well known tire saver have grown enormously as tire prices have increased. The "Shaler Vul-Kit" is known to the auto owner as the means of doubling tire mileage by sealing casing cuts before dirt and water get in to rot the fabric. Casings always need care that will be given only if the motorist has his own vulcanizer.



The Vul-Kit has a 3½x4 inch curved surface for mending cuts, sandpockets, etc., in all sized casings without removing tire from wheel or letting out the air. A machined surface of 10 square inches mends all tube injuries, curing clear through and making permanent repairs of any size. The asbestos inlaid pressure plate is swiveled to avoid squeezing one side of tube tighter than the other and to enable the largest tube to be handled without pinching its edges. A lamp burning gasoline or alcohol produces the correct heat without dangerous exposed blaze or smoke. A measure gives the proper fuel charge. No watching or regulating is necessary. The fuel is absorbed by a wick so there is no flaming liquid to spill. The handle is detachable for packing to carry in car. Complete with repair rubber, cement and full instructions. Polished nickel. Weight 4½ pounds. One dozen in carton.

Manufactured by C. A. Shaler Co., Waupun, Wis. Price, type G, No. 32, retail price, $3.50.

Oil Soap, one of the Blue Ribbon specialties, is a purely vegetable oil soap of the highest quality. It contains no rancid animal fat or excess alkali. It is an ideal soap for cleaning and washing automobiles, carriages and harness, and a general cleaner for railway trains, boats and buildings.

BLUE RIBBON
TRADE MARK
OIL SOAP

Manufactured by the International Metal Polish Co., Indianapolis, Ind. Prices: One pound can, 40 cents; two pound can, 65 cents; five pound can, $1.50; 10 pound can, $2.90; 25 pound can, $6.40; 45 pound can, $10.80.

Neatsfoot Clutch and Brake Compound. Slipping clutches or weak brakes take all the pleasure and most of the safety out of motoring. Something must be done at once. When your clutch starts slipping or grabbing, treat the facing wih Norwesco Neatsfoot Clutch and Brake Compound. Its efficiency will return promptly. Failing brakes take a new lease of life when treated with this compound. The linings seize the brake drums with all their old firmness. The compound is not greasy.

NEATSFOOT
CLUTCH and BRAKE
COMPOUND

Manufactured by the Northwestern Chemical Co., Marietta, O. Price, pint cans, 50 cents.

Hercules All-Year Tops for Ford Cars. The top is covered and the curtains are made of 34-ounce tan back auto rubber. There is a skeleton style top with natural wood bows. The rear side window is stationary and fitted with double strength glass. The curtains above doors roll up, working on a patented roller device and can be raised or lowered instantly. The center metal posts on either side are attached to the Ford top irons and are locked on the inside to the top and can be removed quickly. These poles can be carried under the seat. All irons are adjustable so that a perfect fit can be made on any Ford body of the 1915, 1916, 1917 or 1918 model. It is not necessary to buy a new windshield, as the Hercules top in connection with the front metal posts is fitted to the old windshield. The net weight of the touring car top is 76 pounds and crated weight 200 pounds. The net weight of the roadster top is 54 pounds and the crated weight 140 pounds.

Manufactured by the Hercules Buggy Co., Evansville, Ind. Write for literature and prices.

RECORD OF BUILDING OPERATIONS FOR MARCH

Contracts Made and Plans Contemplated for Alterations or Erection of Garages, Repair Shops, Service Stations and New Plants.

CONTEMPLATED PLANS AND SPECIFICATIONS.

Birmingham, Ala.; Burns Brothers; one-story brick garage, 80x100.

Hartford, Conn.; Harry Dragat, 340 Windsor avenue; two garages, 22x40 and 25x50; $3400.

New Haven, Conn.; Charles N. Cooke, 75 Clark street; one-story garage, 15x20; $2000.

New Haven, Conn.; Antonio Vanacore, 147 Wooster street; one-story garage, 50x130.

Waterbury, Conn.; S. L. Gottlieg, 291 S. Main street: two-story public garage, 44x85; $30,000.

Waterbury, Conn.; Max Mendel, 54 Burton street; two-story garage, 29x39; $1000.

Washington, D. C.; A. B. Mullett & Co., Union Trust building; five-story garage, 60x125; $100,000.

Jacksonville, Fla.; Wilson-Toomer Fertilizer Co.; one-story garage; $3000.

Punta Gorda, Fla.; Hewitt Brothers; one-story garage, 80x150.

Donaldsonville, Ga.; Milton Shingler; one-story garage, 70x80.

Canton, Ill.; P. M. Buckley; one-story public garage, 62x105; $20,000.

Canton, Ill.; W. R. Sebree; one-story private garage, 20x30; $20,000.

Chicago, Ill.; K. K. Burkowski, 4428 S. Ashland avenue; one-story garage, 92x125; $25,000.

Chicago, Ill.; J. C. Tinn & Co., 9464 Cottage Grove avenue; one-story garage, 50x93; $15,000.

Chicago, Ill.; City of Chicago, Commissioner of Public Works, 406 City Hall; one-story garage, 65x175; $40,000.

Chicago, Ill.; Joseph P. Metzdorf, 3452 Greenview avenue; one-story garage, 18x30.

Tremont, Ill.; F. Hinman; one-story garage, 60x120; $15,000.

Freeport, Ill.; O. H. Wright Estate; two public garages, 1½ story each; 63x110 and 45x90; $25,000.

Jonesboro, Ill.; Frank Hess; two-story public garage, 60x100; $10,000.

Peoria, Ill.; Hewitt & Emerson, 321 Main street; two-story garages and show rooms, 88x160; $75,000.

Vandalia, Ill.; H. B. Craycroft; one-story and two-story public garage, 45x150; $8000.

Elkhart, Ind.; W. W. Haynes; Haynes building; one-story public garage, 53x70; $5000.

Lafayette, Ind.; Thomas Wilson; one-story garage, 66x126.

Monon, Ind.; J. F. Horner; one-story garage, 30x120; $10,000.

Newton, Ind.; Galloway Auto Co.; one-story garage, 60x120.

Richmond, Ind.; McConaha Co.; one-story garage, 41x51x264; $75,000.

Iowa City, Ia.; C. Bathell, 26 S. Dubuque street; one-story garage and show room, 40x90; $15,000.

Sioux City, Ia.; Shoeberg Morton Co., 706-8 Pierce street; four-story garage, salesroom and repair shop, 75x150.

Cottonwood Falls, Kan.; Frank Hoel; one-story garage, 44x110.

Wichita, Kan.; Andrews & Rohrer; one-story garage, 50x270; $50,000.

Wichita, Kan.; J. M. Baker and E. M. Schreiber, Eldorado, Kan.; two-story garage, 50x140; $35,000.

Portland, Me.; Charles B. Dalton; one-story garage, 50x165; at 146-66 Middle street; $12,000.

Baltimore, Md.; Luigi Di Stefano, 368 N. Gay street; one-story garage, 35x75, at Colvin street; $15,000.

Baltimore, Md.; J C. Spedden, 2715 Harlem avenue; one story garage, 44x82; $10,000.

Frederick, Md.; Kepner & Smith, 34 N. Market street; one-story garage; $5000.

Boston, Mass.; Thomas H. Connelly; one-story public garage, 100x130.

Boston, Mass.; Arthur H. Bowditch, 44 Broomfield street; one-story public garage; $150,000.

Boston, Mass.; J. M. Mann, 90 Canal street; 1½-story private garage, 23x26; $3600.

Boston, Mass.; John J. Raiche, 103 Ashley street; one-story public garage, 20x80; $1200.

Boston, Mass.; Coleman & Gilbert; two-story garage, 92x110; $75,000.

Boston, Mass.; William London; one-story garage, 80x250; $50,000.

Boston, Mass.; Owen T. Farley; one-story garage, 60x70.

Cambridge, Mass.; Edward B. Benedict; one-story garage, 21x21x21; at 34 Meadow road; $1500.

Medford, Mass.; John Pierce; one-story garage, 18x102; at 96 Winchester street; $15,000.

Worcester, Mass.; Barnard Press, 1 Granite street; one-story public garage and show room; 50x85.

Detroit, Mich.; Martin Garage Co., 2460 E. Grand boulevard; two-story garage and machine shop; 80x180.

Detroit, Mich.; Henry Moeller, 116 Alfred street; two-story garage, 35x71; $10,000.

Mt. Clemens, Mich.; M. J. Cohen; one-story garage, 50x80; $10,000.

Hastings, Minn.; Lloyd F. Kingston: two-story public garage, 50x66; $5000.

St. Paul, Minn.; P. O. Nasvik, 1368 Ashland avenue; one-story public garage; $10,000.

St. Paul, Minn.; S. J. Bowler, 322 S. Fourth street; two-story public garage; $25,000.

Chadwick, Mo.; J. D. McLachlin; one-story garage, 50x100.

Kansas City, Mo.; Edward Austin; one-story garage, 67x100; $12,000.

St. Louis, Mo.; William P. McMahon, 701 Title Guarantee building; one-story garage, 50x120; $9000.

Central City, Neb.; Grabe & Helleberg, Columbus, Neb.; one-story garage, 60x131; $15,000.

Atlantic City, N. J.; H. Kantor, 2318 Arctic avenue; one-story public garage, 51x80; $8000.

Atlantic City, N. J.; C. E. Henhelman, 2213 Pacific avenue; two-story garage and sales room; $25,000.

Atlantic City, N. J.; R. H. Mergenthaler, 33 S. Carolina avenue, 51x82; $15,000.

Camden, N. J.; Herman Bloom; one-story private garage, 60x120; $60,000.

Elizabeth, N. J.; Board of Chosen Freeholders of Union County, Court House; one-story county garage, 30x60; $10,000.

Newark, N. J.; Jacob Salkaln, 115 South street; one-story garage, 30x44; $2000.

Newark, N. J.; Emil G. Meyer, 13 Bloomfield avenue; one-story private garage, 21x24; $2000.

Newark, N. J.; Albert Eitner, 196 Wilson avenue; one-story garage, 50x100; $10,000.

Newark, N. J.; Philip Gruber, 666 S. 12th street; one-story garage, 19x50; $2000.

Newark, N. J.; George E. Jones, Union building; one-story public garage, 54x110; $15,000.

Trenton, N. J.; Frederick Barlow, 130 E. State street; two-story private garage, 20x50; $5000.

Binghamton, N. Y.; Nathan Gilinsky, 20 De Russy street; one-story garage, 50x70; $3000.

Brooklyn, N. Y.; Morris Gold, 814 Myrtle avenue; one-story garage; $2000.

Brooklyn, N. Y.; Seabring Warehouse Co., 32 Court street; one-story garage, 53x151; $35,000.

Brooklyn, N. Y.; Camilia Camiedella, 833 St. Johns place; one-story garage and repair shop; $3000.

Brooklyn, N. Y.; Max Klofress, 525 Fifth avenue; one-story garage, 25x100; $2500.

Brooklyn, N. Y.; Gabarini Brothers, 145 Butler street; one-story public garage, 50x100; $8000.

Brooklyn, N. Y.; Spencer Realty Co., Broadway and Havemeyer streets; one-story garage, 50x200; $30,000.

Brooklyn, N. Y.; Municipal Auto Garage Co., 26 Court street; one-story garage and shop, 75x200; $35,000.

Brooklyn, N. Y.; Charles Katz, 892 Bushwick avenue; one-story garage; $10,000.

Brooklyn, N. Y.; Wizder Dyeing and Chemical Co., 155 Broadway; one-story garage; $7000.

Brooklyn, N. Y.; L. B. Building Co., 189 Montague street; one-story garage; $25,000.

Brooklyn, N. Y.; H. J. Nurick, 957 Broadway; one-story private garage, 17x22; $2000.

Brooklyn, N. Y.; Philip I. Realty Co., 249 Chester street; one-story garage, 16x18; $2000.

Brooklyn, N. Y.; Hyman Dobromilsky, 109 Watkins street; one-story garage, 25x100; $7000.

Brooklyn, N. Y.; Jacob Kallich, 371 Monroe street; one-story garage, 20x20.

Brooklyn, N. Y.; Aaron Benjamin, 1164 Eastern Parkway; one-story garage; $14,000.

Brooklyn, N. Y.; Flora J. Abrahams, 509 Throop avenue; one-story garage, 51x137; $7500.

Brooklyn, N. Y.; J. H. Werbelovsky & Son, 83 Meserole street; one-story garage work shop and storage station; $100,000.

Brooklyn, N. Y.; Annie Amsterdam, 1984 Bergen street; one-story garage; $1500.

Brooklyn, N. Y.; B. & A. Realty Co., 756 Flushing avenue; one-story garage, 100x100; $18,000.

Brooklyn, N. Y.; Greenpoint Construction Co., 1102 Eastern Parkway; one-story garage, 34x100; $8000.

Brooklyn, N. Y.; Perris Construction Co., First National Bank building; one-story garage, 50x200; $60,000.

Brooklyn, N. Y.; M. Livope, 421 Dean street; one-story garage, 15x41; $2000.

Long Island City, L. I., N. Y.; C. Curtis Woodruff, 213 Tenth street; one-story garage, 75x100; $20,000.

Mt. Vernon, N. Y.; George R. Coughlas, 120 Glen avenue; one-story garage, 20x20; $1500.

New York, N. Y.; S. P. Building Co.; one-story garage, 72x102; $10,000.

New York, N. Y.; J. J. Mahon; one-story garage, 11x50x99; at 46 West 14th street; $10,000.

New York, N. Y.; Somerfield & Steckler, 31 Union square; one-story garage, 125x176; $40,000.

New York, N. Y.; Henry Birdsal, 183 West street; two-story garage, 71x100; $40,000.

New York, N. Y.; Patrick Reardon, 237 South street; two-story public garage, 27x87; $10,000.

New York, N. Y.; George Backer, 15 W. 50th street; two-story garage, 75x100; $20,000.

New York, N. Y.; Meyer A. Schumann, 36 East 12th street; one-story garage, 100x185; $25,000.

New York, N. Y.; Benson Realty Co., 31 Nassau street; one-story garage, 50x90; $15,000.

New York, N. Y.; 233 West 25th Street Co., Inc., 245 West 55th street; four-story garage, 80x98.

New York, N. Y.; William F. Connell, 1001 Intervale avenue; two-story garage, 70x100; $30,000.

New York, N. Y.; Abraham Ruth, 445 Audubon avenue; one-story garage, 125x176; $40,000.

New York, N. Y.; 549-51 West 49th Street Co., 411 West 38th street; one-story garage; $20,000.

New York, N. Y.; Max Grober, 41 Goerck street; one-story garage, 95x196; $30,000.

New York, N. Y.; Philip Hauser, 4853 Carpenter avenue; one-story garage, 45x75; $8500.

Niagara Falls, N. Y.; William Young, 230 First street; one-story garage, 33x132; $6500.

Ridgewood, L. I., N. Y.; Valentine Bumb, 69 Glasser street; one-story garage, 18x18; $1000.

Charlotte, N. C.; N. J. Sherill; one-story brick, steel and concrete garage, 45x175.

Greenville, N. C.; M. H. Pinnix; one-story brick garage; $18,000.

Akron, O.; Mrs. J. Amous, 366 S. Main street; one-story garage, 26x46; $2500.

Akron, O.; C. E. Ackerman; one-story public garage, 62x200; $35,000.

Bucyrus, O.; P. O. Blook; one-story garage, 52x60; $15,000.

Cincinnati, O.; John Weigel, 664 McMillan street; 1½-story private garage, 20x25; $1000.

Cincinnati, O.; Lukenheimer Co.; one-story private garage, 50x160; $10,000.

Lima, O.; A. J. Dunn; one-story garage; $65,000.

Springfield, O.; E. S. Kelly, Kelly building; two-story private garage, 25x40; $10,000.

Xenia, O.; P. H. Flynn, care Xenia Shoe Manufacturing Co.; one-story garage, 60x112; $10,000.

Bethlehem, Pa.; Connon Water Co.; P. O. building; one-story private garage, 30x85; $10,000.

Bethlehem, Pa.; Orests Pappane, R. F. D. No. 1, Greemansburg, Pa.; one-story public garage, 40x130; $10,000.

Coatesville, Pa.; Richard Kern, Jr., 242 E. Main street; one-story private garage, 22x60; $3000.

East Mauch Chunk, Pa.; J. P. Bennyhoff, Lehigh Valley station; two-story garage, 20x32; $5000.

Midland, Pa.; Beglin Brothers; two-story commercial garge, 49x120.

Pittsburgh, Pa.; West Penn Motor Sales Co., 5164 Penn avenue; one-story commercial garage, 90x100; $40,000.

Philadelphia, Pa.; Hamilton J. Fowell, 6352 Parkhill avenue; one-story garage, 17x18 and 9x18; $3200.

Philadelphia, Pa.; Peter Kuhn, 3058 N. Eighth street; one-story public garage, 21x140; $10,000.

Philadelphia, Pa.; H. H. Kline, 536 Mifflin street; one-story public garage, 50x100.

Philadelphia, Pa.; Edward M. Harris, 2220 Callohill street; one-story garage, 38x120; $6500.

Uniontown, Pa.; John T. Hoover, two or three-story garage, 50x300.

Providence, R. I.; M. A. Brothman; one-story garage, 41x65; at Iriquois and Randall streets.

Rock Hill, S. C.; City Motor Co.; one-story garage, 46x100; $10,000.

Rock Hill, S. C.; Anderson Motor Co.; one-story auto building; $75,000.

Aberdeen, S. D.; J. F. Jenkins, 312 S. 14th street; one-story private garage, 12x30.

Arlington, S. D.; Stark & Bauch; two-story public garage, 50x100.

Leola, S. D.; Kohlhoff Brothers; one-story public garage, 48x62; $35,000.

Nashville, Tenn.; D. E. Bradford; one-story garage, 100x175.

San Juan, Tex.; Frank E. Powell; one-story garage, 50x120.

Norfolk, Va.; H. A. Williams, Dickson building; one-story garage; $3000.

Norfolk, Va.; Nathan Bundy, care Prospect Lumber Co.; two-story garage, 30x112; $22,000.

Norfolk, Va.; Olney Place Corporation; three-story garage, 55x100; $40,000.

Norfolk, Va.; Paul T. Collins, 812 Mantos street; 22 one-story individual garages, 40x100; $9000.

Norfolk, Va.; T. S. Southgate Co., 261 W. Tazewell street; one-story brick garage; $2500.

Portsmouth, Va.; Modern Architect Co., P. O. Box 591; one-story public garage, 55x127; $10,000.

Richmond, Va.; J. T. Nuckels, 1102 E. Main street; one-story garage; $2000.

Salem, Va.; O. G. Lewis; one-story garage and show room; $10,000.

Huntington, W. Va.; John B. Stevenson, 1661 Fifth avenue; two-story garage, 60x160.

S. Tacoma, Wash.; Menson & Merrifield; one-story garage; $12,000.

Milwaukee, Wis.; Fischer & Zwicke, 1222 Chestnut street; one-story garage, 20x28; $1000.

Milwaukee, Wis.; Frank Kraiming, 1147 Forest Home; one-story public garage, 50x106; $10,000.

Milwaukee, Wis.; American Auto Co., 187 Milwaukee street; two-story garage and service station, 125x180; $40,000.

Superior, Wis.; D. S. Webb; one-story garage; $35,000.

CONTRACTS AWARDED.

Birmingham, Ala.; C. M. Allen & Sons; one-story auto show room and service station, 90x100; for Burns Brothers, 407 S. 21st street.

Little Rock, Ark.; T. F. Campbell, 2200 Center street; one-story fireproof auto building, 100x130; for Climber Motor Corporation, 217 Bogle building; $25,000.

Wilmington, Del.; Frank R. Zebley, 1302 King street; one-story garage, 20x150; $3750.

Wilmington, Del.; J. E. Healy & Sons, Inc., 707 Fatnall street; one-story public garage, 30x60; for Ernest Disabatine, 501 N. Lincoln street; $12,500.

Wilmington, Del.; Reed & Brothers, 815 Shipley street; three-story public garage and service station, 41x109; $20,000.

Aurora, Ill; Bomberger Brothers, 77 N. View street; one-story garage, 20x24; $1400.

Chicago, Ill.; J. C. Finn & Co., 9464 Cottage Grove avenue; one-story garage, 50x93; $15,000.

Chicago, Ill.; Moody & Waters Co., 1107 W. Congress street; one-story garage, 60x100; $15,000.

Woodstock, Ill.; Clarence Moore, 321 Gory street; one-story public garage, 40x50; for Thomas B. Merwin, Maywood and Jackson streets; $4000.

Waterloo, Ia.; H. A. Maine Co., Marsh Place building; one-story garage, 40x80; for C. A. Morris.

Newport, Ky.; Lampe & Eichle, 809 Overton avenue; one-story private garage, 20x24; for William A. Elmer, Eighth and Central avenue; $1000.

Portland, Me.; Googins & Clark, 46 Portland street; one-story private garage, 25x26; for Charles B. Hinds, 27 Chadwick street; $2500.

Baltimore, Md.; William Foreman, Govanstown; one-story garage, 43x100; for Wilfred F. Terry, 3900 Kate avenue; $15,000.

Baltimore, Md.; P. J. Cushen, 220 St. Paul stret; two-story garage, 32x50; at Federal and Hargrove streets; for William Sireal & Son, Calvert and Federal streets.

Mt. Airy, Md.; Hahn & Betson, 30 Wimmer street; one-story garage, 39x100; for E. E. Butler.

Newton, Mass.; J. F. Currie, 50 Howard street, Newtonville, Mass.; one-story garage, 21x22; for Dr. Frank Clark; $1200.

Quincy, Mass.; Oscar Swanson; one-story private garage, 51x82; for Fred Barnicoat; $7500.

Kalamazoo, Mich.; O. F. Miller, 139 Prospect street; two-story garage, 54x132; for George T. Waber; $15,000.

Backus, Minn.; Backus Lumber Co.; one-story public garage, 60x140; $6500.

Kansas City, Mo.; Charles W. Segfried, 3220 Wyandotte street; one-story garage, 31x35; for Faultless Laundry Co., 1401 Woodland avenue; $1200.

Sikeston, Mo.; Concrete Construction Co.; one-story public garage, 60x80; for Mrs. Henson estate, care Nancy Henson, New Madrid, Mo.; $7000.

St. Louis, Mo.; Fruin-Colon Construction Co., 502 Merchants' Laclede building; one-story garage, 27x48; for C. M. Clark, 15 Hortense place; $6000.

Jersey City, N. J.; Autonio D'Elia, 394 Second street; one-story public garage, 25x48; for A. Macchio, 116 Golden street; $3000.

Kearny, N. J.; Slamond Brothers, 526 Elm street, Arlington, N. J.; one-story garage and storage station for Ohio Cities Gas Co. or Pure Oil Co., 423 Passaic avenue, East Newark, N. J.; $27,000.

Newark, N. J.; Irvington Lumber and Door Co., 738 Broad street; one-story garage, 50x76; for Al Eitner, 196 Wilson street; $13,500.

New York, N. Y.; D. La Sala, 2253 Bathgate avenue; one-story garage, 50x90; for Practical Garage Co., 822 Undercliff avenue, Edgewater, N. J.; $10,000.

Tottenville, L. I., N. Y.; R. W. Smith Construction Co., 638 Lexington avenue, New York; one-story garage, 32x44; for Standard Oil Co., 26 Broadway, New York; $5000.

Cincinnati, O.; Baxter Building Co., 425 McGregor Place; one-story public garage, 19x132; for H. Stange, 1013 Walnut street; $3000.

Dayton, O.; G. H. Shartzer, 832 S. Ludlow avenue; one-story private garage, 20x34; for E. F. Primmer, 123 W. Grand avenue; $2000.

Cleveland, O.; Crowell, Lundoff & Little Co., 5716 Euclid avenue; one-story garage, 22x48; for Lakeside Hospital, 1231 Lakeside avenue; $25,000.

Philadelphia, Pa.; Alfred Mellor, 152 W. Walnut lane; one-story garage, 12x23; $1800.

Scranton, Pa.; Barrett Construction Co., Connell building; one-story private garage, 42x70; for M. F. Fadden, 1409 Mulberry street; $12,000.

Newport, R. I.; William H. Harlea, 10 Bammer street; one-story public garage; $7000.

Memphis, Tenn.; C. E. Hamilton, Odd Fellows' building, St. Louis, Mo.; one-story garage, 80x120, at 337 E. Butler avenue; for American Railway Express Co., 124 Court street.

Norfolk, Va.; W. T. Gregory, Law building; two-story garage and storage station, 96x106; for Colonial Garage Corporation, Citizens' Bank building; $30,000.

Portsmouth, Pa.; J. N. Harris; one-story garage, 57x100; for Harry Nash, care Overland Auto Co.

Martinsburg, W. Va.; Sprinkle Brothers; two-story concrete garage, 30x50.

Wheeling, W. Va.; George H. Dierngor, Oak Park; 1½-story garage and storage station, 25x66; for Dr. Charles H. Klesor, 2302 Chapline street; $12,000.

Milwaukee, Wis.; Fischer & Zwicke, 1222 Chestnut street; one-story, 14x22; for A. L. Langtry, 756 Sherman boulevard; $1000.

Milwaukee, Wis.; A. L. Langtry, 756 Sherman boulevard; one-story garage, 14x22; $1500.

CELLULAR INNER TUBE CORP.

The Cellular Inner Tube Corporation, Manhattan, New York City, has been incorporated with $20,000 capitalization by W. A. Montross, F. C. McKinney and M. C. Durkee, 952 St. Nicholas avenue.

BROADWAY TIRE JOBBERS, INC.

The Broadway Tire Jobbers, Inc., Newark, to deal in tires, has been chartered with $125,000 capitalization by H. S. Eisenberg and Leo Koplin, Newark, and H. D. Eisenberg, Irvington, N. J.

NEW BUSINESS CONCERNS, GARAGES AND AGENCIES

The Month's Record of Garages, Agencies, Branches, Service Stations and Repair Shops

FACTORIES, GARAGES AND REPAIR SHOPS.

Dublin, Cal.; Hansen Brothers have remodeled their garage.

Stockton, Cal.; Glover's Garage has added a battery service department and secured agency for Exide storage batteries.

Waterbury, Conn.; S. L. Gottlieb is erecting a garage, 44 by 100 feet.

Belleville, Ill.; Meyer Brothers Automobile Co. will erect a new garage 75 by 120 feet at the corner of B and High streets. The building will include a show room, service station and educational room.

Caseyville, Ill.; Louis Koehler, Jr., is erecting a large garage.

Decatur, Ill.; Joseph L. English has opened a garage and repair shop at Church and Main streets. He will take care of tractor and truck repair work, as well as service on passenger cars.

Joliet, Ill.; F. J. Walsh will erect a 12-story garage.

Nashua, Ia.; Carl Patterson has purchased the Ford garage.

Onawa, Ia.; Ross & Son is erecting a garage.

Sigourney, Ia.; A. P. Humphrey has leased a garage and will handle Buick and Dodge cars.

Webster City, Ia.; Hansen-Tyler Auto Co. is building an addition to its garage. The new addition will be 67 by 99 feet, making the total 99x129 feet.

Hutchinson, Kan.; The Class A Garage has opened at 20 West Sherman avenue. Harry B. Cushionbury and Tom R. Foster are the proprietors.

Boston, Mass.; Owen F. Farley, Jr., and Asa H. Weeks have erected a six-story fireproof garage which will be operated under the name of the Portland Street Garage Co. It will be located at 12-20 Custom House street.

Howell, Mass.; Joseph Marcellas has opened a garage in the shoe shop of Wheeler Ames on Station avenue.

Revere, Mass.; The Broadway Garage has reopened under the management of Walter Batchelder and David Pimentel. It is located at 146 Broadway.

Worcester, Mass.; Worcester Tire and Rubber Co. has opened at 681 Main street. Increasing business necessitated a new store. L. M. Cahn is owner and manager. The company has the exclusive agency for Keystone and National Speedway tires.

Grand Rapids, Mich.; F. E. Wood Motor Co. has leased the double garage and sales room at 206 and 212 Ionia avenue, N. W.

Mankato, Minn.; George H. Thomas has opened an automobile repair shop at 122 East Hickory street. He will engage in rebuilding of radiators, fenders, gas tanks and bodies of automobiles.

New London, Minn.; Stenbakken Brothers is erecting a new garage building on Main street.

Greenwood, Mo.; Vaughn & Son will open a garage.

Pleasant Hill, Mo.; Harry Swarthout has opened a repair shop in the rear of the Dodge agency.

Westmore, Mont.; T. R. Hoffman will erect a garage.

Brooklyn, N. Y.; Michael E. Finnegan is building a one-story garage 50 by 200 feet.

New York, N. Y.; The Buick Auto Repair Co. is planning to erect a garage on the north side of West 54th street. It will be one-story and modern throughout.

Bridgeton, N. C.; Thomas W. Holton is building a new garage.

Charlotte, N. C.; N. J. Sherrill will erect a garage on South Church street. It will be 45 by 175 feet. He has also taken the agency for the Transport truck.

Dunn, N. C.; H. P. Hobson, Jr., has opened a garage. All kinds of parts and accessories and gasoline will be carried.

Four Oaks, N. C.; Jesse Stanley has opened a garage.

Greensboro, N. C.; The Greensboro Motor Car Co. is enlarging its garage.

Beach, N. D.; Archie Lewis has opened an automobile repair shop in the old Greiner building.

Lisbon, N. D.; Dave Curtis will occupy the new garage which is being erected in the southern part of the city.

Sheldon, N. D.; Richard Heuer is planning to erect a garage building.

Wahpeton, N. D.; Dahl-Buscher Co. is erecting a new garage. They have the agency for the Ford cars and Fordson tractors.

Akron, O.; The Northern Liberties Realty Co. will occupy the one-story garage which is being erected at 522-24 North Third street.

Ashtabula, O.; Elmo O. Callender has opened a garage at 13 Spring street.

Cadiz, O.; Tolhurst & Brown have opened a garage and repair shop on Warren street.

Dayton, O.; Liberty Garage is erecting a new garage.

Altoona, Pa.; The Se-Dan Motor Co. has purchased the White Front Garage, Greene avenue, and is making many improvements. The company is under the management of Calvin E. Black.

Ardmore, Pa.; Autocar Co. is erecting a garage 40 by 150 feet.

Charleroi, Pa.; Spencer Garage has opened for business.

Ellwood City, Pa.; Wilson Brothers have opened a shop on Third street. Automobile repairing and painting will be taken care of.

Roxborough, Pa.; Rueben Kenworthy is erecting a garage 2½ stories 40 by 80 feet.

Du Bois, Pa.; U. S. G. Logan will erect a new garage.

Spartanburg, S. C.; Harris Motor Co. is erecting a garage 55 by 142 feet.

Irene. S. D.; Sogge Auto Co. is erecting an addition to the garage.

Tulare, S. D.; Elliott Fink Co. is erecting a new garage. It will be located on Railroad avenue and Third street.

Covington, Tenn. The Townsend-Daugherty Co. has opened a garage and automobile repair shop.

Puyallup, Wash.; H. W. Cowan and W. E. Cowan are erecting a two-story brick garage on North Meridan street, which will house the Dodge cars. The firm are distributors for that car in the Pierce county territory.

Seattle, Wash.; Moran Brothers is erecting a one-story garage, 50 by 110 feet.

Tacoma, Wash.; N. E. Walton has opened a repair shop at 240 St. Helen's avenue.

La Crosse, Wis.; Nash Auto and Machine Co. is erecting a new garage.

Madison, Wis.; Exide Service Co. is erecting a garage 66 by 90 feet.

Madison, Wis.; Adolph G. Milverstedt is erecting a garage 40 by 120 feet.

Milwaukee, Wis.; E. H. Gross, 2627 Walnut street, is erecting a garage to do tire repairing.

AGENCIES, DEALERS AND SERVICE STATIONS.

Siloam, Ark.; The Siloam Auto Co. has been purchased by Jones Brothers.

Los Angeles, Cal.; The Automobile Tire Co. has opened a branch at 1125 Pike street, with E. W. Demarest as northwest manager.

San Francisco, Cal.; The Master Carburetor Sales Co., 540 Van Ness avenue, has secured the agency for the Bushnell magneto.

San Francisco, Cal.; H. W. Van Bilderbeek has opened a vulcanizing shop and tire store at 1205 Market street.

Hartford, Conn.; Capitol City Auto Co. has taken the agency for the White truck.

Hartford, Conn.; The Hartford Motor Car Co. has taken the agency for the Nash car.

New Britain, Conn.; Post & Lester Co. of Hartford has opened for business. R. E. Tyler is manager.

Decatur, Ill.; John Richardson has opened a new tire and motor car accessory store at 243 East Eldorado street.

Freeport, Ill.; Scheffner & Otto have taken on the International motor truck agency for the Stephenson county territory.

Springfield, Ill.; Earl and Guy Zimmerman have formed a partnership in the garage on the east side of the square.

Clinton, Ind.; V. H. Bumgardner and B. M. Bumgardner have purchased the garage on Ninth street.

Boone, Ia.; The Adix Vulcanizing and Auto Repair Shop, 715 Arden street, has installed a U. S. L. battery service station.

Dennison, Ia.; George Newcom has secured the agency for the distribution of the Ford. He is proprietor of the Lincoln Highway Garage.

Des Moines, Ia.; Kelly-Springfield Tire Co. has leased the building on West 18th street and Grand avenue from E. L. Lloyd. The building will soon be ready for occupancy.

Sioux City, Ia.; White Auto Sales Co. has opened at 609 Pearl street under the name of the Automatic Electric Service Co.

Athens, Ga.; The Auto Electric Repair Co. has opened a U. S. L. service station. C. J. O'Farerll is manager.

Macon, Ga.; The D. H. Adams Motor Co., 476-478 Cotton avenue, has secured the Hupmobile agency for Macon and surrounding territory.

Paducah, Ky.; The Gus Edwards Motor Sales Co. has opened its sales room in the garage to take care of the automobile accessories.

Council Grove, Kan.; Charles Burg has opened an Exide station.

Portland, Me.; Falmouth Garage and Tire Co. has opened at Middle and Market streets; a sales room is connected with the garage, which is modern throughout. The company handles the Chevrolet car and Acason truck and the Goodrich solid truck tire.

Brockton, Mass.; Franklin Sales and Service Co. have opened a sales and service room at 255 Main street. Albert S. Saunders is in charge.

Boston, Mass.; The Massachusetts Electrical Laboratories Co. has opened a shop at 1039 Commonwealth avenue for the repair of starting, lighting and ignition systems.

Brockton, Mass.; The Prest-O-Lite is now located in its new headquarters at 107 Belmont street. A complete line of Prest-O-Lite batteries and parts is carried.

Danbury, Mass.; Samuel Schwartz has opened an automobile and cycle supply store at 284 Main street in the Starr block. He will be the local agent for the Goodyear, Kelly-Springfield and U. S. tire companies.

Holyoke, Mass.; J. P. Kane has opened a Chevrolet agency on High street.

Lawrence, Mass.; Irvin J. Matchett of 112 Lippold street, has taken the agency for the Saxon automobile.

Ware, Mass.; Milton C. Baggs has opened a storage battery service station and automobile show room in the Hennessey block. He has the agencies for the Willys-Overland and Willys-Knight passenger cars, Overland light commercial cars, Atterbury and Bethlehem trucks and U. S. L. storage batteries.

Worcester, Mass.; H. E. Blakeslee has opened a new warehouse at 804 Main street. He will distribute the Pierce-Arrow.

Grand Rapids, Mich.; The Ayers Co. has installed a vulcanizing outfit at 209 Ottawa avenue.

Grand Rapids, Mich.; The Tisch Auto Supply Co. has taken the agency for the Amazon tires in Western Michigan.

Ellsworth, Minn.; Ray Bofenkamp has taken the Buick agency.

Little Falls, Minn.; T. C. Gordon has organized and will handle Chevrolet cars.

Butte, Mont.; The Montana Acto and Garage Co. has opened a sales room for the Firestone tires and motor car accessories at the corner of Broadway and Arizona street.

Butte, Mont.; The South Side Battery Station has opened a Columbia battery station at 1704 Harrison avenue.

St. Louis, Mo.; The Lafayette Tire and Vulcanizing Co. has opened a new store at 1811 South Broadway, which will be used as a retail store for the sale of tires, U. and J. carburetors, Ford parts and a complete line of automobile accessories, paints, polishes and oils. The company maintains a modern, well equipped repair shop for automobiles.

Warrenton, Mo.; John Jerger has opened a paint shop.

New York, N. Y.; The Richards Auto Supply Co. is now established in its new home at 231 West 58th street.

Passaic, N. J.; Paterson Tire and Rubber Co. has opened a new store at 569 Main avenue, under the management of J. E. Golden.

Danbury, N. C.; W. W. Davis and George E. Davis have taken the agency for the Dort automobiles.

Smithfield, N. C.; The Ellington Auto Co. has opened to sell the Studebaker.

Cleveland, O ; The Buck Co. has opened an office for the distribution of the Auto-car and the Diamond T truck.

Defiance, O.; Albertus Motor Sales is erecting a Ford service station. It will be 60 by 132 feet.

Defiance, O.; The Defiance Buck Co. has taken the agency for the Defiance motor truck.

Hamilton, O.; S. H. Brayman will open his automobile business in the Fraf Motor Co.'s building, which he recently purchased.

Liverpool, O.; Ohio Motor Service and Sales Co. has opened a service and repair shop in the Rinehart building on Second street.

Martins Ferry, O.; Ralph & Lemmon will open a vulcanizing shop on Walnut street.

Guymon, Okla.; William A. Albrecht, Jr., has opened a repair shop.

Hobart, Okla.; The Western Oklahoma Battery and Electric Co. has opened a sales room with J. V. Jackson as manager.

Portland, Ore.; The Brunn Motor Car Co. will erect a commodious building at 28-30 North Broadway. The building will be 50 by 95 feet and will cost $15,000.

Grove City, Pa.; Sparks Brothers have opened a repair shop on Broad street.

Johnstown, Pa.; The Johnstown Auto Trading Co. has opened at 43 Baumer street to deal in used cars, trucks and motorcycles.

Meadville, Pa.; Blair-Radford Motor Car Co. has been organized to handle the Dodge Brothers car throughout Crawford county and two counties in Venango.

Vandergrift, Pa.; Brown-Heehn Automobile Vulcanizing Co. has opened for business in the Central Garage, 144 Washington avenue. They will handle the Saxon Six and Gray worm drive trucks and do repair work.

Philadelphia, Pa.; Aetna Realty Co. has bought the garage building at 1421 North Broad street.

Providence, R. I.; B. D. Aldrich Co. will distribute the Nash automobile.

Aberdeen, S. D.; The Dayton Airless Tire Agency has been secured by N. W. Fulker. A complete line of automobile accessories will also be carried.

Mitchell, S. D.; Chamberlain Auto and Supply Co. has opened for business and will handle the Studebaker and Maxwell cars and International trucks.

Mitchell, S. D.; The Siberz & Davis Co. is now local dealer for the Oakland cars.

Greenville, S. C.; A. B. Yeargin and J. R. Smith have opened a new automobile concern and will handle the Cadillac and Stutz cars, in sales room in the new building at 552-554 South Main street.

Jackson, Tenn.; The United Motors Co. has organized to handle the Dort, Hupmobile, Jordan and Mercer cars. A service station will also be continued in connection with its business.

Memphis, Tenn.; The Shelby Electric Co., 231 Union avenue, has opened a business for the rewinding and repair of dynamos, motors, starters and generators.

El Paso, Tex.; S. H. Parmelee has opened a well equipped battery and magneto service station. It will be known as the El Paso Battery and Magneto Co.

Sulphur Springs, Tex.; Bob Nelson will remodel the Jefferson theater into a garage and work shop.

Auburn, Wash.; The Auburn Auto Supply Co. has opened a general accessory store and Paige sales rooms on First avenue.

Seattle, Wash.; The Bardshar Motor Co., Inc., will handle the Allen and Moon cars in the new sales rooms at 1621 13th avenue.

Seattle, Wash.; The Lone Dual Lighting and Ignition Co. has opened a branch service station at 62 Marion street.

Seattle, Wash.; W. R. McFarland has opened the M. & S. repair shop on Olive street.

Seattle, Wash.; Whitney & Carroll have opened a repair shop at 1606 Broadway.

Danville, Va.; William R. Hill has opened a sales room at 117 Union street, for the purpose of handling the Reo intersets in the south side Virginia.

Spokane, Wash.; Rantz & Halstead have opened sales rooms at W. 1015 Riverside avenue and have secured the distribution of the Franklin cars.

Tacoma, Wash.; Sam J. Kenyon has taken the agency for the Marmon automobile at 218 St. Helen's avenue.

NEW CONCERNS RECENTLY INCORPORATED

Monthly Record of New Business Houses for which Charters Have Been Issued in the Various States and Classified According To Nature of Business.

NEWLY ORGANIZED MANUFACTURERS OF CARS, TRUCKS AND TRACTORS.

Dover, Del.; Double Gear Axle Co.; $8,000,000; to manufacture automobiles, motor trucks; Philip L. Neisser, Paul S. Smith, Samuel B. Howard.

Wilmington, Del.; Export Motor Corporation of America; $100,000; to manufacture automobiles.

Dover, Del.; Fulton Truck Co. of Indiana; $200,000; to manufacture and repair automobiles.

Dover, Del.; Export Motor Corporation of America; $100,000; to manufacture automobiles; Gilbert E. Cartin, Fred Guy, Faber B. Sergardi.

Anderson, Ind.; Madison Motors and Tractor Corporation; $1,200,000; John F. Green, Charles H. Jockmus, Cecil E. Gibson.

Lincoln, Me.; Jeffery Motor Co.; $10,000; to manufacture, buy and sell automobiles and trucks; George S. Ranney, J. Orville Jeffrey, J. C. Lynch.

Brooklyn, N. Y.; Mason Richardson Corporation; $25,000; to manufacture automobiles and machinery; C. J. Mason, R. W. Richardson, F. J. Richardson.

Elma, N. Y.; Jerge Truck and Body Co.; $150,000; to manufacture trucks, tractors, automobiles and motor vehicles; J. J. Jerge, B. Jerge, L. Jerge.

Salem, Va.; Hill-Field Body Co.; $50,000; to manufacture automobiles and vehicle bodies; H. B. Rockhill.

PARTS AND FITTINGS MAKERS.

Dover, Del.; Automobile Heater and Specialty Co.; $100,000; to manufacture, sell and deal in heaters; C. L. Rimlinger, E. Latter, P. B. Drew.

Jerseyville, Ill.; The Jerseyville Motor Co.; $30,000; Mary E. Hanes, C. M. Hanes, Paul J. Schleeper.

Chicago, Ill.; Breska Motor Co.; $2500; Frank Breska, Charles H. Fries, Charles H. Malwitz.

Quincy, Ill.; T. C. Nichols Motor Co.; $25,000; Joseph R. Caldwell, Thomas C. Nichols, Olive B. Nichols.

Grand Rapids, Mich.; Foote Reynolds Co.; $250,000; Lewis S. Reynolds, E. Stuart Foote, C. S. Dixter.

Sutton, Neb.; Sutton Implement and Auto Co.; $50,000; Andrew Groshams, F. J. Groshams.

New York, N. Y.; Elgin Automobile Co.; $30,000; to deal in motors; E. L. Sanger, H. Sanger, H. Weiss.

New York, N. Y.; Schou Non-Metallic Piston Co., Inc.; $500,000; H. D. Fricke, C. Ericson, J. Behrmann.

Louisville, Ky.; O. K. Motors Co.; $25,000; Frank S. Querbacker, J. W. Sutton, Frank T. Sullivan.

Dayton, O.; Dayton Auto Sales and Parts Co.; $75,000; Harry Israel, Jesse J. Jacobs, William B. Israel, Robert A. Greger.

Cleveland, O.; Cleveland Liberty Motor Co.; $50,000; S. H. Miller, Max S. Fishel, R. E. Stein, B. R. Kohn.

Cleveland, O.; Motoadnak Co.; $10,000; to deal in automobile attachments; Earl H. Meller, J. E. Smith, Harry E. Davis.

Norman, Okla.; Minteer Motor Co.; $10,000; J. C. Minteer, E. R. Minteer, Arthur Lewis.

Cleveland, O.; Cleveland Spring Wheel and Tire Co.; $50,000; Jasper P. Murry, H. L. Adams, A. F. Jaite.

Norwood, O.; Corcoran Fender and Tool Box Co.; $1000; J. L. Corcoran, W. R. Hughes, J. F. Rogers.

El Paso, Tex.; Southern Border Motor Co.; $50,000; Leo Burdick, J. A. Kranauer, L. A. Thompson.

Milwaukee, Wis.; Sun Carburetor Co.; $100,000; Emil F. Deuster, J. B. Brahonovski, F. J. Ramler.

GARAGES AND REPAIR SHOIPS.

Americus, Ga.; Georgia Motor Co.; $15,000; to conduct a general automobile and garage business; J. Wilbur, James W. Mosteller, John W. Oliver.

Moline, Ill.; Perfection Tire and Supply Co.; $10,000; to operate a garage; Arthur J. White, Frank E. Anderson, Edward L. Petit.

Hammond, Ind.; Hammond-Nash Sales Co.; $10,000; to operate a garage; Roy J. Heist, James F. Grantham.

North Vernon, Ind.; North Vernon Garage; $10,000; Joseph T. Roseberry, Harvey A. Wilson, George Miller.

Louisville, Ky.; Oak Street Garage; $50,000; D. W. Boyd, Dan Carrell, H. B. Swearingen.

Portland, Me.; Dickson's Garage, Inc.; $10,000; Frederick K. Dickson, Alva A. Swift, Jacob H. Berman.

Leominster, Mass.; Leominster Garage and Auto Co.; $10,000; to conduct a general automobile business; Fred A. Lovewell, Joseph P. Carney, James E. Lovewell.

Brooklyn, N. Y.; Vernon Garage Co.; $5000; W. F. Hohwiesner, M. M. Hohweisner.

New York, N. Y.; Acme Estates, Inc.; $20,000; to conduct a garage business; L. W. Gallagher, F. Kennedy, J. Fearon.

New York, N. Y.; Seilman's Garage, Inc.; $5000; L. Blass, H. Simon, N. Bender.

New York, N. Y. (Queens); Jackson Heights Garage and Auto Sales Corporation; $5000; George P. Martin, George J. Dutcher, F. T. Harbach.

New York, N. Y.; The Victory Automobile Repair Shop, Inc.; $5000; D. Schloss, E. Janivitch, S. Masters.

Youngstown, O.; Steel City Auto Repair Co.; $10,000; H. S. Waldo, A. U. Custard, A. B. Calvin.

Cleveland, O.; Broadway Arcade Garage Co.; $25,000; R. E. Hyde, F. L. Stevens, S. J. Friedman.

Newport News, Va.; Enterprise Garage, Inc.; Louis Sachs, Henry Sachs.

Memphis, Tenn.; Mammoth Garage; $5000; to conduct a public garage and repair shop; E. C. Palmer.

Sheboygan, Wis.; A. Z. Garage; $5000; Frank Maersh, Herman Ziegler, Howard A. Altenback.

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Little Rock, Ark.; Powell-Neal Rubber Co.; $5000; to conduct an automobile tire business; E. R. Powell, E. D. Neal, R. A. Powell.

Dover, Del.; Hartig Tire and Rubber Co.; $50,000; to manufacture and sell automobile tires; Louis Hartig, Jr., F. J. Fickling, A. C. Jones.

Dover, Del.; United Manufacturing Co., Inc.; $100,000; to manufacture tools; Ernest R. Heyn, Alfred Kaufman, Frank R. Mitcheson.

Dover, Del.; Triangle Rubber Co.; $100,000; to manufacture tires.

Dover, Del.; Wear Well Tire Co.; $50,000; to manufacture tires; J. H. McCann, George C. Largo, M. F. Shiffer.

Wilmington, Del.; Lever Adjustable Rim Co.; $1,000,000; to manufacture and sell wheel rims and wheels.

Chicago, Ill.; T. N. T. Motor Fuel Co.; $25,000; Fred C. Churchill, Martin G. Loeff, Anna J. Cohon.

Davenport, Ia.; Fouless Spark Plug Co.; $100,000; to manufacture and sell spark plugs for automobiles and trucks; A. C. Dunkel, W. G. Sanford.

Rockford, Ill.; National Rubber and Vulcanizing Co.; $10,000; A. Johnson, R. W. Bergstrom.

Springfield, Ill.; Lyons Tire Co.; $5000; to deal in automobile tires; P. Henry Stewart, Albert P Lyon, Nellie B. Lyon.

Newark, N. J.; Standard Auto Supply Co.; $50,000; to manufacture automobile supplies and accessories.

New York, N. Y.; Alloy Metal Wire Co., Inc.; $30,000; S. A. Murray, E. H. Cleary, J. A. Marsato.

New York, N. Y.; Borkin Tire Co., Inc.; $10,000; S. Vogelson, A. Borkin, M. Kaplow.

New York, N. Y.; Daley Tire Co.; $25,000; Maurice Minoz, John Hall Jones, John S. Ogletree.

New York, N. Y.; Erie Tire and Rubber Co., Inc.; $5000; C. A. Waldon, H. S. Hartstein, A. Hirsch.

New York, N. Y.; Fair Tire and Rubber Co., Inc.; $5000; C. A. Weldon, A. Hirsch, H. S. Hartsein.

New York, N. Y.; Lenzi Trucking and Storage Co.; $5000; J. Canale, D. J. Pioselli, L. Lenzi.

New York, N. Y.; Peter Widin, Inc.; $5000; to deal in foundry supplies; P. Widin, C. Widin, P. Gruenberg.

Asheville, N. C.; Battery Service Co.; $5000; to conduct a wholesale and retail automobile supply business; J. C. Williams.

Rocky Mount, N. C.; Atlantic Motor Sales Co.; $100,000; C. A. Jones, O. J. Jones.

Akron, O.; Akron Universal Tire Co.; $75,000; C. R. Baker, John M. Elliott, O. Mullen.

Akron, O.; Arch Tire and Rubber Co.; $100,000; John W. Pepple, Jack H. Weaver, John Rowe, L. O. Beck.

Cincinnati, O.; Evanston Motor Sales Co.; $10,000; Wayne Shurts, Olin A. Fagin, James H. Wiggins, J. Sagmeister.

Cleveland, O.; East Boulevard Auto and Tire Service Co.; $5000; M. A. Kolar, F. J. Pekoc, Jr., S. A. Cook.

Cleveland, O.; Maxo-Tire Sales Co.; $10,000; C. J. Buckley, W. T. Hagelin, A. S. Culbertson.

Dayton, O.; Associated Automobile Repairing and Accessories Co.; $10,000; Wm. D. Schwarting, Wm. H. Muller, V. Z. Miller.

Port Clinton, O.; Ohio State Tire Co.; $300,000.

Zanesville, O.; The Larkin Auto Supply Co.; $10,000; M. I. Morrow, F. F. Frazier, Alfred A. Frazier.

Muskogee, Okla.; American Tire and Rubber Co.; $100,000; Earl V. Harris, William A. McMullen.

DEALERS IN AUTOMOBILES, MOTOR TRUCKS AND TRACTORS.

Benton, Ark.; Cox-Caldwell Automobile Co.; $12,000; to conduct a general automobile business; W. J. Cox, J. M. Caldwell, Orlando Hays.

Norwich, Conn.; People's 'Bus Co.; $15,000; to operate motor vehicles.

Selbyville, Del.; The Selbyville Auto Co.; $10,000; to deal in and with automobiles, trucks; Edward V. Baker, James M. Tunnell, W. G. Williams.

Boise, Ida.; Lewiston Motor Co.; $25,000; to conduct a general automobile business.

Chicago, Ill.; American Motor Truck Co.; $25,000; Nicholas Carter, Albert Coen.

Chicago, Ill.; Locht Brothers Auto Sales Co.; .$10,000; John Locht, Otto H. Miller.

Chicago, Ill.; Oldsmobile Sales Co.; $10,000; W. C. Auble, R. H. Reid.

Indianapolis, Ind.; Automotive Service Co.; $75,000; to deal in trucks and automobiles; A. D. Miller, Robert E. Hosea, L. D. Clavcombe.

Indianapolis, Ind.; Central States Automobile Association of Indiana; $10,000; Charles W. Rollinson, George G. Garrett, I. E. Fress.

Lafayette, Ind.; The Lion Supply Co.; $50,000; to deal in automobile accessories; Edgar D. Randolph, James S. Randolph.

Des Moines, Ia.; Des Moines Auto Co.; $25,000; to sell automobiles and trucks; T. W. Gorman, E. F. Wilson, V. L. Callison.

Louisville, Ky.; Auburn Motor Sales Co.; to deal in automobiles; $20,000; W. J. Merten, O. L. Black, John R. Boyd.

Paducah, Ky.; Moshell Motor Car Co.; $6000; R. E. Moshell, Porter White, W. C. Hunter.

Portland, Me.; Franklin Service and Sales Co.; $50,000; to conduct a general automobile business; C. R. Marston, P. E. Frost, S. S. Thaxter.

Boston, Mass.; Cambria Auto Tire Exchange, Inc.; $25,000; to deal in automobile supplies; Samuel Harris, Max Leitman, Nathan Leitman.

Boston, Mass.; Herschell-Spillman Motor Co.; $1,750,000; to conduct a general automobile business; Fred A. Lovewell, Joseph P. Carney, James E. Lovewell.

Detroit, Mich.; Detroit Electric Car Co.; $600,000.

Mt. Pleasant, Mich.; Naumes Bamber Motor Sales Co.; $20,000.

Great Falls, Mont.; Central Auto Supply Co.; $10,000; to deal in automobiles and accessories; R. O. Smith, J. C. Peters, Harry H. McCole.

Jersey City, N. J.; Nash Sales Corporation; $25,000; to conduct a general automobile business.

Newark, N. J.; F. B. Hague Co.; $125,000; to conduct a general automobile business .

Passaic, N. J.; Passaic and New York Transfer Co.; $25,000; to conduct an express business; Rubin Dresster, Hyman Bernstein, Bessie Bernstein.

Passaic, N. J.; R. B. Potter Auto Co.; $50,000; to conduct a general automobile business.

Pleasantville, N. J.; Pleasantville Motor Co.; $125,000; to conduct a general automobile business.

Trenton, N. J.; Childs-McGrath Motor Co., Inc.; $100,000; to conduct a general automobile business.

Brooklyn, N. Y.; Franklin Motor Transportation, Inc.; $10,000; M. Ryan, M. F. Franklin, W. E. Franklin.

Brooklyn, N. Y.; Willoughby Automobile Co., Inc.; $15,000; H. J. Pergamont, D. L. Samuels, Abraham Jacobs.

Buffalo, N. Y.; Fulton-Madine Motor Corporation; $50,000; to conduct an automobile business; J. D. Madine, W. B. Dickinson, M. G. Goetz.

New York, N. Y.; Delta Foundry and Machine Co.; $250,000; F. J. Shea, F. C. Reilly, F. J. McCaul.

New York, N. Y.; Lease Motor Co., Inc.; $50,000; Robert M. Lease, Irving Levine, Albert Lease.

New York, N. Y.; Lightning Motor Line, Inc.; $10,000; W. F. Timme, B. Czajkowski, J. Horsh.

New York, N. Y.; Long Island Rural Motor Express Co., Inc.; $50,000; H. I. Huber, E. D. Kenyon, J. A. Davis.

New York, N. Y.; Herzog Motor Transportation Co., Inc.; $10,000; B. Ladinsky, B. H. Whitestone, H. Herzog.

New York, N. Y.; Metropolitan Detroit Electric Automobile Co., Inc.; $10,000; L. Weiner, W. Behrens, E. E. Parrack.

New York, N. Y.; Mutual Automobilists Cooperative Association, Inc.; $5000; to furnish attorney service to owners of automobiles; Wray C. Arnold, M. Elliott, Frank J. Riera.

New York, N. Y.; Nash Syracuse Co.; $5000; to conduct an automobile business; G. W. Fox, L. E. Higbee, F. P. Malpass.

New York, N. Y.; Overseas Motor Service Corporation; $100,000; to conduct an automobile business; B. Lockwood, E. H. Kelly, F. A. Gaynor.

New York, N. Y.; Petroleum Engine and Manufacturing Co.; $100,000; W. P. Brew, L. A. Michaelsen, De Dessau.

New York, N. Y.; Waterbury-Carey; $50,000; to make autos, farm tractors and harvesters; W. Swain, J. M. Keyser, R. Eble.

New York, N. Y.; Watson Transportation Corporation; $100,000; to conduct a general trucking and automobile business; John J. McManus, E. B. Walton, Charles E. Engel.

New York, N. Y.; Yankee Motor Trucking Corporation; $5000; D. Wagman, D. D. Deutsch, J. L. Diamond.

Rochester, N. Y.; Chal-Max Motor Corporation; $30,000; J. L. Hicks, H. W. Waldeck, L. C. Thompson.

Syracuse, N. Y.; Nash Syracuse Co.; $5000; to conduct an automobile business; G. W. Fox, L. E. Dixon, Alva A. Swift.

Cincinnati, O.; Evanston Motor Sales Co.; $10,000; Wayne Shurts, F. H. Malick, James S. Wiggins.

Cleveland, O.; Cleveland Automobile Club Co.; $500; A. H. Seibig, R. J. Schmunk, John L. Young, John R. Bently, Walter D. Meals.

Columbus, O.; Columbus Buick Co.; $150,000; Oscar S. Lear, Lawrence M. Hurst, Ernest W. Pavey, John J. Chester.

Columbus, O.; Columbus Commercial Body Co.; $25,000; to manufacture automobile bodies; K. Henderson, Herman R. Tingley, Curtis C. Beach, John S. Dawson.

Columbus, O.; Electric Car Co.; $10,000; George R. Hedges, Stewart A. Hoover, Herman R. Tingeley, George S. Long.

Cleveland, O.; Gannet Auto Co.; $50,000; E. E. McCloud, C. F. Gross, H. C. Berghaus, W. J. Coughlin, E. E. Cunningham.

Cleveland, O.; Indiana Truck Sales Co.; $5000; Frank H. Raymond, Dave Laux, Carl F. Cook.

Dayton, O.; Gem City Auto Sales Co.; $50,000; Edwin L. McCleary, Charles E. Foreman, Theodore H. Barlow.

Wetmore-Savage Co., Makes Large Expansion

The Wetmore-Savage Co., has purchased the business, good will, stock and equipment of the Motor Car Equipment Co. of Boston and has opened a new automobile department at 180-182 Massachusetts avenue. The company will be able to serve the trade better at this location and will at all times carry a complete and up-to-date line of automobile and garage equipment.

V. C. Bruce Wetmore.

The company will retain, as far as possible, the present Motor Car Equipment Co.'s Boston organization and interweave with it several men from its own who are experienced in automotive equipment.

The Wetmore-Savage Co. has been the largest electrical supply house in New England and has operated an automobile department in connection with the electrical supply department for several years. The purchase of the Motor Car Equipment Co. will permit it to handle a larger business at once. The organization is unique inasmuch as it embraces both the allied electrical and automotive equipment lines.

All orders, correspondence, freight or express shipments pertaining to automobile supplies should be sent to the Wetmore-Savage Co.'s automobile department at 180-182 Massachusetts avenue, Boston.

The Wetmore-Savage Co., under the management of V. C. Bruce Wetmore and Hanson M. Savage, started in the electrical supplies business about 13 years ago in a modest way. Since then it has developed a business second to none in its line in New England.

Realizing the inevitable growth of the automotive equipment business several years ago, the company established a department for this trade, which had developed to such substantial proportions in 1918 that it was decided to extend that part of the business in a large way and seek a location for the department nearer the center of the automobile trade of the city.

The Motor Car Equipment Co. of Boston, the leading jobber in automotive equipment in New England, was offered for sale because of a reorganization of the parent company in New York. The Wetmore-Savage Co. saw the opportunity, grasped it, and almost over night became the owner of the stock and business in a deal which represented perhaps the quickest cash transaction ever put through in this trade in New England.

The general manager of the new organization is Hanson M. Savage. The sales are in charge of E. L. Allis, formerly manager for the Motor Car Equipment Co.; E. W. Littlefield and J. C. Lane of the Wetmore-Savage sales department. R. P. Greene is the purchasing agent.

Extensive improvements and additions are under way at the new store. The stock will comprise a complete and comprehensive line of accessories, with quick and facile service to the large group of customers who personally do their buying.

The business will be continued as before, 100 per cent. wholesale, and the policy of the firm will be the heartiest cooperation with dealers.

Hanson M. Savage.

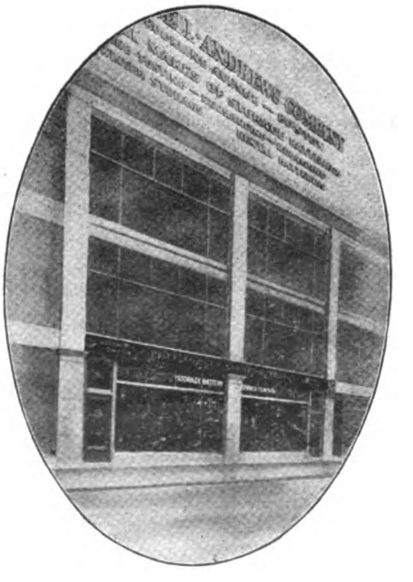
The foundation upon which the success of the firm of the Wetmore-Savage Co. is based is a spirit of broad-minded democratic, personal service. Its slogan has always been "The House That Service Built," and the company has lived up to it.

It is the aim of the company to establish in New England in the auto accessories trade an institution embodying in its policy every factor which good business dictates and, more than that, in which the element of cooperation and service is developed to its highest point.

PETTINGELL-ANDREWS CO.'S BATTERY SERVICE.

The Pettingell-Andrews Co., since establishing its automobile division at 100 Brookline avenue, Boston, about a year ago, has built up a flourishing business by strict adherence to its "Five-Point Service" policy. Through this service every car owner is enabled to know the exact condition of his battery after test and examination by thorough factory trained men. Because of this complete and satisfactory service, and the established popularity of the guaranteed non-sulphating Eveready storage battery, car owners have made the Pettingell-Andrews Co. their service headquarters.

In addition to its local service the company has extended its service throughout New England by a plan of hearty cooperation with its local agents, which enables them to offer this same complete service to their customers. The company is continually extending its sales organization, and welcomes inquiries from dealers who wish to handle a guaranteed battery backed by an aggressive sales policy which will build business for them.



Pettingell-Andrews Co.'s Battery Service Station.

CONNECTICUT CHARTER.

The Progressive Motor Sales Co., New Haven, Conn., to repair and deal in vehicles of all kinds, accessories, etc., has been chartered in Connecticut with $60,000 capitalization.

MOTOR FIRM CHARTERS.

The Belden Motor Co., Manhattan, New York City, has been incorporated with $25,000 capitalization by E. W. Bovers, W. B. Whelpley and C. I. Evans, 1 Arden street.

WITH WILLYS AGENT IN DETROIT.

W. I. Brown is now assistant retail manager of the Detroit branch of the Simons Sales Co., distributor for the Overland and Willys cars.

TRUCK MODELS, CAPACITIES AND PRICES.

Production of 164 Different Manufacturers, a Total of 530 Machines, Listed Alphabetically by Trade Name. These Are the Revised Quotations, Correct to March 1.

Aeme Motor Truck Co., Cadillac, Mich.
Trade Name, Aeme.

Model	Tons	Chas. Price	Com. Price
B	1	$1950	......
A	2	$2750	......
C	3½	$3650	......
E	5	$4750	......

All-American Truck Co., 2952 W. Chicago St., Chicago, Ill.
Trade Name, All-American.

Model	Tons	Chas. Price	Com. Price
A	1	$1295	......

The O. Armleder Co., 12th, Plum and Charles Sts., Cincinnati, O.
Trade Name, Armleder.

Model	Tons	Chas. Price	Com. Price
HW	2	$2950	......
KW	3½	$3950	......

Martin Truck and Body Corp., York, Pa.
Trade Name, Atlas.

Model	Tons	Chas. Price	Com. Price
19	¾	$1160	......

Atterbury Motor Car Co., Elmwood and Hertel Aves., Buffalo, N. Y.
Trade Name, Atterbury.

Model	Tons	Chas. Price	Com. Price
7R	1½	$2575	......
7C Standard	2	$2975	......
7C L. Wh'base	2	$3075	......
7D Standard	3½	$3875	......
7D L. Wh'base	3½	$3975	......
8E	5	$4975	......

The Autocar Co., Ardmore, Pa.
Trade Name, Autocar.

Model	Tons	Chas. Price	Com. Price
XX1	1½-2	$2050	......

Available Truck Co., Chicago, Ill.
Trade Name, Available.

Model	Tons	Chas. Price	Com. Price
H2	2	......	......
H3	3½	......	......

Beck-Hawkeye Motor Truck Works, 901-13 First Ave., W., Cedar Rapids, Ia.
Trade Name, Beck.

Model	Tons	Chas. Price	Com. Price
A	1	$1550	......
B	1½	$1950	......
C	2	$2250	......
D	3	$2650	......

Bell Motor Car Co., Center and P. R. R., York, Pa.
Trade Name, Bell.

Model	Lbs.	Chas. Price	Com. Price
G	1200	$1150	......

Bessemer Motor Truck Co., Grove City, Pa.
Trade Name, Bessemer.

Model	Tons	Chas. Price	Com. Price
G	1	$1575	......
H	1½	$1945	......
J	2	$2490	......
J-2	2½	$2785	......
K	3½	$3450	......

Bethlehem Motors Corp., Allentown, Pa.
Trade Name, Bethlehem.

Model	Tons	Chas. Price	Com. Price
D	1½	$1965	$2135
E	2½	$2365	$2555
F	3½	$3465	......

Brinton Motor Truck Co., 5740 Cherry St., Philadelphia, Pa.
Trade Name, Brinton.

Model	Tons	Chas. Price	Com. Price
H	1	$1500	......
F	2½	$3000	......

Briscoe Motor Corp., 162 Leroy Ave., Jackson, Mich.
Trade Name, Briscoe.

Model	Tons	Chas. Price	Com. Price
B-24	Open B	$885	......
B-24	Closed B	$910	......

Brockway Motor Truck Co., Railroad, Cortland, N. Y.
Trade Name, Brockway.

Model	Tons	Chas. Price	Com. Price
S	1½	$2050	......
J-2	1½	$2450	......
K-3	2	$2850	......
R	2½	$3750	......
T	5	$4850	......

Chevrolet Motor Co., 57th at Broadway, New York, N. Y.
Trade Name, Chevrolet.

Model	Tons	Chas. Price	Com. Price
......	1	$1325	......
Express	1	$1460	......
Ex. with top	1	$1545	......

Collier Motor Truck Co., Bellevue, O.
Trade Name, Collier.

Model	Tons	Chas. Price	Com. Price
16	1¼	$1375	......

The Clyde Cars Co., Clyde, O.
Trade Name, Clydesdale.

Model	Tons	Chas. Price	Com. Price
65	2	$2975	.....
90	3½	$3950	.....
120B	5	$4975	.....

Columbia Motor Truck and Trailer Co., Pontiac, Mich.
Trade Name, Columbia.

Model	Tons	Chas. Price	Com. Price
E	2-2½	$2350	$2585
ET	6	$3110	$3185
F	1-1½	$1750	$1970
3T trailer 4 w.	3	$850	$1000

The Commerce Motor Car Co., 26 Mackie St., Detroit, Mich.
Trade Name, Commerce.

Model	Tons	Chas. Price	Com. Price
EA	1-1½	$1500	$1565
EH	1-1½	.....	$1630
ES	1-1½	.....	$1655
EPA	1½-2	$1895	$1960
EPH	1½-2	$1895	$2025
EPS	1½-2	$1895	$2050

Abbott-Downing Truck and Body Co., Concord, N. H.
Trade Name, Concord.

Model	Tons	Chas. Price	Com. Price
A	1½	$2550	$2550
B	2½	$3000	$3000

Conestoga Motor Truck Co., Duke and Vine Sts., Lancaster, Pa.
Trade Name, Conestoga.

Model	Tons	Chas. Price	Com. Price
20	1	$1850	.....
30	2	$2550	.....

Corbitt Motor Truck Co., R. F. D. No. 3, Henderson, N. C.
Trade Name, Corbitt.

Model	Tons	Chas. Price	Com. Price
AA	5	$450	.....
A	3½	$4000	.....
B	2½	$3200	.....
C	2	$3000	.....
D	1½	$2400	.....
E	1	$2000	.....

Corliss Motor Truck Co., Corliss, Wis.
Trade Name, Corliss.

Model	Tons	Chas. Price	Com. Price
......	½	$715	.....

Couple Gear Freight Wheel Co, Bush Ave., Grand Rapids, Mich.
Trade Name, Couple Gear.
Electric.

Model	Tons	Chas. Price	Com. Price
H	3½	$4750	.....
A	5	$5250	.....
LO	7	$5900	.....
Gas Electric.			
HC	3½	$6100	$6400
AC	5	$6700	$7100
LDC	7	$7350	$7800

Dart Truck and Tractor Corp., Waterloo, Ia.
Trade Name, Dart.

Model	Tons	Chas. Price	Com. Price
E	1	$2100	.....
CC4	2	$2950	.....
L	3½	$4000	.....

Day-Elders Motors Corp., 164 Ogden St., Newark, N. J.
Trade Name, Day-Elder.

Model	Tons	Chas. Price	Com. Price
J	¾	$1045	.....
A	1	$1775	.....
B	1½	$2075	.....
D	2	$2450	.....
C	2½	$2750	.....
F	3½	$3450	.....
E	5	$4500	.....

Dearborn Truck Co., 2515 W. 35th St., Chicago, Ill.
Trade Name, Dearborn.

Model	Tons	Chas. Price	Com. Price
A	1	$975	.....
F	1½	$1980	.....

Turnbull Motor Truck and Wagon Co., Defiance, O.
Trade Name, Defiance.

Model	Tons	Chas. Price	Com. Price
B	1½	$1795	.....
C	2	$1995	.....
D	3½	$3500	.....

De Kalb Wagon Co., De Kalb, Ill.
Trade Name, De Kalb.

Model	Tons	Chas. Price	Com. Price
E2	2	$2100	.....
......	2½	$2600	.....

De Martini Motor Car Co., 375-9 Bay St., San Francisco, Cal.
Trade Name, De Martini.

Model	Tons	Chas. Price	Com. Price
A17W	1	$2250	.....
C17W	2	$2750	.....
E17W	3	$3650	.....
G17W	4	$4250	.....

Denby Motor Truck Co., 400 Holbrook Ave., Detroit, Mich.
Trade Name, Denby.

Model	Tons	Chas. Price	Com. Price
12	1	$1650	.....
13	2	$2350	.....
25	2½	$3000	.....
27	3½	$4150	.....
210	5	$4900	.....

Diamond T Motor Car Co., 4501 W. 26th St., Chicago, Ill.
Trade Name, Diamond T.

Model	Tons	Chas. Price	Com. Price
J5	1	$2125	.....
J4	1½	$2550	.....
J3	2	$2925	.....
LB	3½	$4150	.....
R	5	$4950	.....

Dispatch Motor Car Co., 1200 14th Ave., Minneapolis, Minn.
Trade Name, Dispatch.

Model	Tons	Chas. Price	Com. Price
G	1½	$1200	.....

Doane Motor Truck Co., 428 Third St., San Francisco, Cal.
Trade Name, Doane.

Model	Tons	Chas. Price	Com. Price
......	2½	$3500	.....
......	6	$5650	.....

Dodge Brothers, Detroit, Mich.
Trade Name, Dodge.

Model	Tons	Chas. Price	Com. Price
......	½	$1085	.....

Dorris Motor Car Co., 4100 Laclede St., St. Louis, Mo.
Trade Name, Dorris.

Model	Tons	Chas. Price	Com. Price
K4	2	$2985	.....
K7	3½	$3800	.....

Double Drive Truck Co., W. Kinzie St., Chicago, Ill.
Trade Name, Double Drive.

Model	Tons	Chas. Price	Com. Price
B	3	$4000	.....
C	1½	$2500	.....

Douglas Motors Corp., 30th and Sprague Sts., Omaha, Neb.
Trade Name, Douglas.

Model	Tons	Chas. Price	Com. Price
......	1½	$2000	.....

Duplex Truck Co., Lansing, Mich.
Trade Name, Duplex Four Wheel Drive.

Model	Tons	Chas. Price	Com. Price
E	3½	$4000	.....

Durable Motor Truck Co., Hammond, Ind.
Trade Name, Durable.

Model	Tons	Chas. Price	Com. Price
B2-18	1½	$2040	.....

Mills-Ellsworth Co., Keokuk, Ia.
Trade Name, Ellsworth.

Model	Tons	Chas. Price	Com. Price
25A	½	....	$855

Fageol Motors Co., 107th Ave. and Hollywood Blvd., Oakland, Cal.
Trade Name, Fageol.

Model	Tons	Chas. Price	Com. Price
......	2	$3300	.....
......	3½	$4250	.....
......	5	$5100	.....

Famous Trucks, Inc., Broad St., St. Joseph, Mich.
Trade Name, Famous.

Model	Tons	Chas. Price	Com. Price
B10	1	$1690	.....
B12	1½	$2250	.....

Fargo Motor Car Co., 1162-66 W. 22nd St., Chicago, Ill.
Trade Name, Fargo.

Model	Tons	Chas. Price	Com. Price
P	2	$2200	.....

Federal Motor Truck Co., Federal St., Detroit, Mich.
Trade Name, Federal.

Model	Tons	Chas. Price	Com. Price
S	1	$1900	.....
T	1½	$2350	.....
U	2	$2600	.....
W	3½	$3350	.....
X	5	$4400	.....

Ford Motor Co., Woodward Ave., Detroit, Mich.
Trade Name, Ford.

Model	Tons	Chas. Price	Com. Price
T	1	$550	.....

Four Wheel Drive Auto Co., Clintonville, Wis.
Trade Name, FWD.

Model	Tons	Chas. Price	Com. Price
B	3	$4500	.....

Fulton Motor Truck Co., Long Island, Farmingdale, N. Y.
Trade Name, Fulton.

Model	Tons	Chas. Price	Com. Price
FX	1½	$1850	.....

Gabriel Motor Truck Co., 315 W. Prospect St., Cleveland, O.
Trade Name, Gabriel.

Model	Tons	Chas. Price	Com. Price
C	1	$1950	.....
E	2	$3250	.....
F	3	$4300	.....

The Garford Motor Truck Co., Lima, O.
Trade Name, Garford.

Model	Tons	Chas. Price	Com. Price
75-C	1	$2500	.....
66-B	1½	$3000	.....
70-B	2	$3300	.....
77-C	3½	$4300	.....
68	5	$5000	.....
69	6	$5300	.....

General Motors Truck Co., Pontiac, Mich.
Trade Name, G. M. C.

Model	Tons	Chas. Price	Com. Price
16	¾	$1495	......
21	1	$2025	.....
31A&B	1½	$2395	.....
41A&B	2	$2725	.....
71A&B	3½	$3750	.....
71B	3½	$3800	.....
101A	5	$4350	.....
101B	5	$4400	.....

Geneva Wagon Co., Geneva, N. Y.
Trade Name, Geneva.

Model	Tons	Chas. Price	Com. Price
B	¾	$700	.....
C	¾	$750	.....

Gersix Manufacturing Co., 2913-26 Fifth Ave., Seattle, Wash.
Trade Name, Gersix.

Model	Tons	Chas. Price	Com. Price
G	2½	$3150	.....
H	2½	$3150	.....
K	2½	$3150	.....

Chicago Pneumatic Tool Co., 1030 Fisher Bldg., Chicago, Ill.
Trade Name, Giant.

Model	Tons	Chas. Price	Com. Price
15	1	$1850	.....
......	1½	$2250	.....
......	2	$2850	.....
......	2	$2900	.....
......	3½	$3850	.....

Globe Motor Truck Syndicate, Ltd., 18th and Brady Sts., East St. Louis, Ill.
Trade Name, Globe.

Model	Tons	Chas. Price	Com. Price
A	1	$1625	.....
B	1½	$1990	.....
C	2	$2400	.....
CC	2	$2500	.....

Gramm-Bernstein Motor Truck Co., Lima, O.
Trade Name, Gramm-Bernstein.

Model	Tons	Chas. Price	Com. Price
15	1½	$1895	.....
1½	1½	$2450	.....
2	2	$2750	.....
2½	2½	$3350	.....
3½	3½	$4000	.....
5	5	$5000	.....

Grant Motor Car Corporation, Colt and Kirby Sts., Cleveland, O.
Trade Name, Grant.

Model	Tons	Chas. Price	Com. Price
10	1½	$1885	.....
11	1½	$1935	.....
12	1800 lbs.	$1065	$1125
15	2	$2150	.....
16	2	$2250	.....

Hahn Motor Truck and Wagon Co., S. Fourth St., Hamburg, Pa.
Trade Name, Hahn.

Model	Tons	Chas. Price	Com. Price
B	¾	$1225	.....
C	1	$1950	.....
D	1½	$2225	.....
E	2	$2500	.....
F	3½	$3250	.....
G	1	$1375	.....
H	2	$1950	.....

Lewis-Hall Iron Works, Ferry and G. T. R. R., Detroit, Mich.
Trade Name, Hall.

Model	Tons	Chas. Price	Com. Price
2 ton	2	$2675	.....
3½ ton	3½	$3500	.....
5 ton worm	5	$4500	.....
5 ton chain	5	$4500	.....

Harvey Motor Truck Co., Harvey, Ill.
Trade Name, Harvey.

Model	Tons	Chas. Price	Com. Price
WFA	2½	$3050	.....
WHA	3½	$3950	.....
WKA	5	$5050	.....

Hawkeye Truck Co., Sioux City, Ia.
Trade Name, Hawkeye.

Model	Tons	Chas. Price	Com. Price
K	1½	$1900	.....
M	2	$2650	.....

Henderson Bros. Co., Inc., 2067 Mass. Ave., N. Cambridge, Mass.
Trade Name, Henderson.

Model	Tons	Chas. Price	Com. Price
C	..	$1350	.....
D	..	$1750	.....
E	..	$1850	.....

Hendrickson Motor Truck Co., 3538 Wabash Ave., Chicago, Ill.
Trade Name, Hendrickson.

Model	Tons	Chas. Price	Com. Price
G	2	$2850	.....
H	3½	$3650	.....

Higrade Motors Co., Harbor Springs, Mich.
Trade Name, Higrade.

Model	Tons	Chas. Price	Com. Price
A17	¾	$1850	.....
A18	1	$2100	.....

Hoover Wagon Co., York, Pa.
Trade Name, Hoover.

Model	Lbs.	Chas. Price	Com. Price
15B	1500	$1625	.....
20A	2250	$2250	.....

Hurlburt Motor Truck Co., Third Ave. and Harlem River, New York, N. Y.
Trade Name, Hurlburt.

Model	Tons	Chas. Price	Com. Price
..	2	$3500	.....
..	3½	$4250	.....
..	5	$5250	.....

Independent Motor Co., 1636 Wilson Ave., Youngstown, O.
Trade Name, Independent.

Model	Tons	Chas. Price	Com. Price
F	1	$1685	.....
G	2	$2300	.....

Indiana Truck Corp., Marion, Ind.
Trade Name, Indiana.

Model	Tons	Chas. Price	Com. Price
..	1	$2150	.....
..	1½	$2600	.....
..	2	$2800	.....
..	3½	$3450	.....
..	5	$4500	.....

International Harvester Co., 606 S. Michigan Ave., Chicago, Ill.
Trade Name, International.

Model	Tons	Chas. Price	Com. Price
H	¾	$1550	.....
F	1	$1850	.....
K	1½	$2200	.....
G	2	$2600	.....

Jones Motor Car Co., 210 W. Douglas Ave., Wichita, Kan.
Trade Name, Jones.

Model	Tons	Chas. Price	Com. Price
......	1	$1395	.....

Nelson Motor Truck Co., Saginaw, Mich.
Trade Name, Jumbo.

Model	Tons	Chas. Price	Com. Price
......	2	$2500	.....

The Kelly-Springfield Motor Truck Co., Sheridan Ave. and Burt St., Springfield, O.
Trade Name, Kelly-Springfield.

Model	Tons	Chas. Price	Com. Price
K-31	1½	$2750	.....
K-32	1½	$2750	.....
K-35	2½	$3250	.....
K-36	2½	$3250	.....
K-40	3½	$4250	.....
K-45	4	$4400	.....
K-50	5	$4900	.....
K-60	6	$5200	.....

Kissel Motor Car Co., Hartford, Wis.
Trade Name, Kissel.

Model	Tons	Chas. Price	Com. Price
Gen. Utility	1½	$2073.50	.....
Freighter	2	$2832.50	.....
Heavy duty	3½	$3905.00	.....
5 ton	5	$4785.00	.....

Kleiber & Co., Inc., 11th and Folsom Sts., San Francisco, Cal.
Trade Name, Kleiber.

Model	Tons	Chas. Price	Com. Price
AA	1-1½	$2400	.....
A	1½-2	$2650	.....
BB	2-2½	$2950	.....
B	2½-3	$3500	.....
C	3¼-4	$4100	.....
D	5	$5100	.....

H. J. Koehlers Motors Corp., 155 Ogden St., Newark, N. J.
Trade Name, Koehler.

Model	Tons	Chas. Price	Com. Price
K	1¼	$1450	.....
L	2½	$1985	.....
M	2½	$2785	.....
O	3½	$3400	.....
R	5	$4200	.....

Lane Motor Truck Co., 1812 Fulford St., Kalamazoo, Mich.
Trade Name, Lane.

Model	Tons	Chas. Price	Com. Price
G	1½	$2250	.....
H	2	$2975	.....
K	3½	$3900	.....

Lange Motor Truck Co., Cor. 5th and Hamilton Aves., Pittsburgh, Pa.
Trade Name, Lange.

Model	Tons	Chas. Price	Com. Price
B	2-2½	$2950	$3200-$3500

Larrabee-Deyo Motor Truck Co., Inc., 23 Washington St., Binghamton, N. Y.
Trade Name, Larrabee-Deyo.

Model	Tons	Chas. Price	Com. Price
M	1	$1950	.....
C & D	2½	$3000	.....
A	3½	$3950	.....
T	5	$4750	.....

Lippard-Stewart Motor Car Co., 226 W. Utica St., Buffalo, N. Y.
Trade Name, Lippard-Stewart.

Model	Tons	Chas. Price	Com. Price
..	¾	$1900	.....
..	1	$2250	.....
..	1½	$2850	.....
..	2	$3050	.....

Loyal Motor Truck Co., W. 6th Ave., Lancaster, O.
Trade Name, Loyal.

Model	Tons	Chas. Price	Com. Price
..	½	$865	.....
Special	¾	$1025	.....
..	1	$1300	.....

Luverne Automotive Co., Maple and McKenzie Sts., Luverne, Minn.
Trade Name, Luverne.

Model	Tons	Chas. Price	Com. Price
..	2	$1800	....

Maccar Truck Co., Providence Ave., Scranton, Pa.
Trade Name, Maccar.

Model	Tons	Chas. Price	Com. Price
L	1½	$2750	.....
L	2½	$3300	.....
M	3½	$4100	.....
U	5½	$5000	.....

International Motor Co., 252 W. 64th St., New York, N. Y.

Trade Name, Mack.

Model	Tons	Chas. Price	Com. Price
AB	1	$2400	.....
AB	1½	$2500	.....
AB	2	$3000	.....
AC	3½	$4600	.....
AC	5½	$5250	.....
AC	7½	$5500	.....

Mack Tractors.

Model	Tons	Chas. Price	Com. Price
AC	7	$4600	.....
AC	11	$5250	.....
AC	15	$5500	.....

O'Connell-Manly Truck Co., Waukegan, Ill.

Trade Name, Manly.

Model	Tons	Chas. Price	Com. Price
30	1½	$2050	.....
40	2	$2350	.....
50	2½	$2800	.....
60	3	$3350	.....

Master Trucks, Inc., 3132-38 Wabash Ave., Chicago, Ill.

Trade Name, Master.

Model	Tons	Chas. Price	Com. Price
JI	1½	$1890	.....
JW	1½	$1990	.....
M	2	$2390	.....
C	2	$2490	.....
W	2	$2590	.....
WL	2	$2690	.....
A	3½	$3890	.....
B	5	$4890	.....

Maxwell Motor Co., Inc., Oakland Ave., Detroit, Mich.

Trade Name, Maxwell.

Model	Tons	Chas. Price	Com. Price
Maxwell chas.	1	$1085	$1085
Chas., cab, w'd	1	$1085	$1125
Stake	1	$1085	$1180
Box	1	$1085	$1175
Express	1	$1085	$1195

Menominee Motor Truck Co., Broadway and Michigan Ave., Menominee, Mich.

Trade Name, Menominee.

Model	Tons	Chas. Price	Com. Price
..	1	$1890	.....
H	1½	$2475	.....
D	2	$2950	.....
G	3½	$3880	.....
J	5	$4950	.....

Midland Motor Car and Truck Co., Oklahoma City, Okla.

Trade Name, Midland.

Model	Tons	Chas. Price	Com. Price
MT	2	$3000	.....
MS	2½	$3150	.....

Moreland Motor Truck Co., 1701 N. Main St., Los Angeles, Cal.

Trade Name, Moreland.

Model	Tons	Chas. Price	Com. Price
19-B	1½	$2650	.....
19-C	2½	$3400	.....
19-G	4	$4375	.....
19-J	5	$4725	.....

Muskegon Engine Co., Muskegon, Mich.

Trade Name, Muskegon.

Model	Tons	Chas. Price	Com. Price
20	2	$2325	.....

E. A. Myers Co., 4101 Senate St., Pittsburgh, Pa.

Trade Name, Myers.

Model	Tons	Chas. Price	Com. Price
50	1	$1495	.....
55	1	$1460	.....
70	1½	$1750	.....
75	1½	$1700	.....

Napoleon Motors Co., E. Eighth St., Traverse City, Mich.

Trade Name, Napoleon.

Model	Tons	Chas. Price	Com. Price
9	1	$1285	$1449
11	1½	$1485	$1649

Nash Motors Co., Kenosha, Wis.

Trade Name, Nash.

Model	Tons	Chas. Price	Com. Price
2018	1	$1650	.....
3018	2	$2175	.....
Quad	2	$3250	.....

New England Truck Co., Fitchburg, Mass.

Trade Name, Netco.

Model	Tons	Chas. Price	Com. Price
D	2	$3000	$3200
H	2½	$3400	$3600

Tegetmeier & Reipe Co., 771 First Ave., New York, N. Y.

Trade Name, New York.

Model	Tons	Chas. Price	Com. Price
M	1½	$2600	.....
N	2	$2800	.....

Noble Motor Truck Corp., Kendallville, Mich.

Trade Name, Noble.

Model	Tons	Chas. Price	Com. Price
NW	2½	$2675	.....
NW4	4	$3750	.....

Starr Carriage Co., First and Stacy Sts., Seattle, Wash.

Trade Name, Northwestern.

Model	Tons	Chas. Price	Com. Price
W2	2	$2950	.....

Norwalk Motor Car Co., Martinsburg, Va.

Trade Name, Norwalk.

Model	Tons	Chas. Price	Com. Price
..	1	$1495	.....
..	1½	$1750	.....

Oklahoma Auto Mfg. Co., North Muskogee, Okla.

Trade Name, O. K.

Model	Tons	Chas. Price	Com. Price
3T	3	$3250	.....
2T	2	$2650	.....
1½T	1½	$2450	.....

Kentucky Wagon Mfg. Co., Third and K Sts, Louisville, Ky.

Trade Name, Old Hickory.

Model	Tons	Chas. Price	Com. Price
..	¾	$995	.....

Old Reliable Motor Truck Co., 3913-27 Michigan Ave., Chicago, Ill.

Trade Name, Old Reliable.

Model	Tons	Chas. Price	Com. Price
W 15	1½	$2350	.....
W 25	2½	$3250	.....
W 35	3½	$4000	.....
W 50	5	$5000	.....
C 50	5	$5000	.....
C 70	7	$6000	.....

Oneida Motor Truck Co., Webster Ave., Green Bay, Wis.

Trade Name, Oneida.

Model	Tons	Chas. Price	Com. Price
A	1	$2290	.....
B	1½	$2650	.....
C	2	$3000	.....
D	3½	$3700	.....
E	5	$4700	.....

Oshkosh Motor Truck Mfg. Co., Oshkosh, Wis.

Trade Name, Oshkosh 4-Wheel Drive.

Model	Tons	Chas. Price	Com. Price
A	2	$3500	.....

Willys-Overland Co., Toledo, O.

Trade Name, Overland.

Model	Lbs.	Chas. Price	Com. Price
Panel	800 lbs.	$1000	.....
Express	800 lbs.	$985	.....
Express	1200 lbs.	$1075	.....

Packard Motor Car Co., Blvd. and Belt Line, Detroit, Mich.

Trade Name, Packard.

Model	Tons	Chas. Price	Com. Price
1-½E	1½-1¾	$3000	.....
2-E	2-2½	$3400	.....
3-E	3-3½	$4100	.....
4-E	4-4½	$4450	.....
5-E	5-5½	$5150	.....
6-E	6-6½	$5400	.....

Paige-Detroit Motor Car Co., Fort and McKinstry Sts., Detroit, Mich.

Trade Name, Paige.

Model	Tons	Chas. Price	Com. Price
50-18	2	$2950	.....
51-18	3½	$3950	.....

Palmer-Meyer Motor Car Co., 5027 McKissock Ave., St. Louis, Mo.

Trade Name, Palmer.

Model	Tons	Chas. Price	Com. Price
..	1	$1685	
..	2	$2495	.....

Panhard Motors Co., Fulton St., Grand Haven, Mich.

Trade Name, Panhard.

Model	Tons	Chas. Price	Com. Price
A	1	$1195	.....
B	1½	$1395	.....
E	2½	$2350	.....

Parker Motor Truck Co., 608 Linus St., Milwaukee, Wis.

Trade Name, Parker.

Model	Tons	Chas. Price	Com. Price
2 ton	4000	$3150	.....
3 ton	6000	$3700	.....
4 ton	8000	$4250	.....
5 ton	10,000	$5000	.....

Hebb Motors Co., 1385 P St., Lincoln, Neb.

Trade Name, Patriot.

Model	Tons	Chas. Price	Com. Price
Lincoln	1½	$2150	.....
Washington	2½	$3150	.....

Peerless Motor Car Co., Quincy Ave. and S. E. 93d St., Cleveland, O.

Trade Name, Peerless.

Model	Tons	Chas. Price	Com. Price
..	3	$4125	.....
..	4	$4150	.....
..	5	$4700	.....

Piedmont Motor Car Co., Inc., Cleveland Ave., Lynchburg, Va.

Trade Name, Piedmont.

Model	Tons	Chas. Price	Com. Price
..	1½	$1650	.....

The Pierce-Arrow Motor Car Co., 1695 Elmwood Ave., Buffalo, N. Y.

Trade Name, Pierce-Arrow.

Model	Tons	Chas. Price	Com. Price
R-9	5	$5500	.....
X-4	2	$3750	.....

Minnesota Machine and Foundry Co., Minneapolis, Minn.

Trade Name, Pony.

Model	Tons	Chas. Price	Com. Price
Pony, open ex.	¼	$320	$360
Pony, cov. ex.	¼	$320	$400

Rainier Motor Corp., Flushing, Long Island, N. Y.

Trade Name, Rainier.

Model	Tons	Chas. Price	Com. Price
R5	½	$1250	.....
R2	¾	$1350	.....
R7	¾	$1550	.....
R4	2¼	$1595	.....
R6	1½	$1890	.....
R8	2	$2250	.....

Rennoc-Leslie Motor Co., 2007 W. Allegheny St., Philadelphia, Pa.

Trade Name, Rennoc.

Model	Tons	Chas. Price	Com. Price
..	2½	$2895	.....

Reliance Motor Truck Co., Appleton, Wis.

Trade Name, Reliance.

Model	Tons	Chas. Price	Com. Price
C	1½	$2500	.....

Reo Motor Car Co., Lansing, Mich.

Trade Name, Reo.

Model	Tons	Chas. Price	Com. Price
..	1½	$1250	.....

Republic Motor Truck Co., Inc., Alma, Mich.

Trade Name, Republic.

Model	Tons	Chas. Price	Com. Price
Dispatch	¾	$1095	.....
Special	1	$1295	.....
10X	1	$1535	.....
11X	1½	$1885	.....
19	2-2½	$2395	.....
20	3½	$3450	.....
V	5	$4750	.....

Reya Co., Napoleon, O.

Trade Name, Reya.

Model	Tons	Chas. Price	Com. Price
A18	¾	$995	.....

The Locomobile Co. of America, 2 Main St., Bridgeport, Conn.

Trade Name, Riker.

Model	Tons	Chas. Price	Com. Price
B-150	3	$4600	.....
B-170	3	$4650	.....
B-190	3	$4700	.....
BB-150	4	$4700	.....
BB-170	4	$4750	.....
BB-190	4	$4800	.....

Rowe Motor Mfg. Co., Lancaster, Pa.

Trade Name, Rowe.

Model	Tons	Chas. Price	Com. Price
C. D. W.	2	$3000	.....
C. D. W.	2½	$3250	.....
D. E. W.	3½	$3800	.....
F. W.	5	$4900	.....
G. W.	3	$4500	.....

Royal Motor Truck Co. of N. Y., 112 8th Ave., New York, N. Y.

Trade Name, Royal.

Model	Tons	Chas. Price	Com. Price
..	1	$2400	.....
..	1½	$2800	.....
..	2	$3200	.....
..	2½	$3500	.....
..	3½	$4200	.....
..	5	$5000	.....
..	6	$5400	.....
..	7	$6500	.....

Sandow Motor Truck Co., 3333 W. Grand Ave., Chicago, Ill.

Trade Name, Sandow.

Model	Tons	Chas. Price	Com. Price
G	1	$1795	.....
CG	1¼	$2090	.....
H	1½	$2375	.....
JS	2	$2650	.....
J	2	$2975	.....
K	3½	$3995	.....

L	5	$4775	.....

Sanford Motor Truck Co., St. Marks Ave., Syracuse, N. Y.

Trade Name, Sanford.

Model	Tons	Chas. Price	Com. Price
W-25	2½	$3000	.....
W-35	3½	$3975	.....
W-50	5	$4750	.....

G. A. Schacht Motor Truck Co., Gest and Evans Sts., Cincinnati, O.

Trade Name, Schacht.

Model	Tons	Chas. Price	Com. Price
..	2	$3150	.....
..	2½	$3500	.....
..	3½	$3950	.....
..	5	$4950	.....

Schwartz Motor Truck Co.
Pearl and Chestnut Sts., Reading, Pa.

Trade Name, Schwartz.

Model	Tons	Chas. Price	Com. Price
..	1½	$2175	.....
..	2½	$2675	.....

Selden Motor Vehicle Co., University Ave. and Probert St., Rochester, N. Y.

Trade Name, Selden.

Model	Tons	Chas. Price	Com. Price
TXR	1	$2000	.....
TWL	1	$2200	.....
JCB	2	$2850	.....
JWB	2	$3050	.....
NL	3½	$3850	.....
DL	5	$5000	.....

Service Motor Truck Co., Wabash, Ind.

Trade Name, Service.

Model	Tons	Chas. Price	Com. Price
220	1	$2100	.....
240	2	$3000	.....
270	3½	$3900	.....
275 (special)	3½	$4200	.....
300	5	$5000	.....

Signal Motor Truck Co., Corner Connors Rd. and Charlevoix Ave., Detroit, Mich.

Trade Name, Signal.

Model	Tons	Chas. Price	Com. Price
F	1-1¼	$2400	.....
H	1½	$2700	.....
J	2-2½	$3100	.....
JL (L. wb.)	2-2½	$3175	.....
M	3½	$4100	.....
ML (L. wb.)	3½	$4200	.....
R	5	$5100	.....

Standard Motor Truck Co., 315 Bellevue Ave., Detroit, Mich.

Trade Name, Standard.

Model	Tons	Chas. Price	Com. Price
76	2	$2800	.....
66	3½	$3675	.....
86	5	$4650	.....

Sterling Motor Truck Co., 46th Ave. and Rogers St., Milwaukee, Wis.

Trade Name, Sterling.

Model	Tons	Chas. Price	Com. Price
..	2½	$3300	.....
..	3½	$4325	.....
..	5	$5100	.....
..	7	$5600	.....

Stewart Motor Corp., 413 E. Delevan St., Buffalo, N. Y.

Trade Name, Stewart.

Model	Tons	Chas. Price	Com. Price
6	¾	$950	$1095
7	2	$2575	$2750
8	1	$1575	$1730
9	1½	$1975	$2145
10	3½	$3500	$3675

Studebaker Corp., South Bend, Ind.

Trade Name, Studebaker.

Model	Tons	Chas. Price	Com. Price
SF	½	$1045	.....
..	1	$1400	.....

Sullivan Motor Truck Corp., 1703 East Ave., Rochester, N. Y.

Trade Name, Sullivan.

Model	Tons	Chas. Price	Com. Price
F	1½	$2350	.....
E	2	$2850	.....
EL	2	$2950	.....

Superior Motor Truck Co., Stewart Ave., Atlanta, Ga.

Trade Name, Superior.

Model	Tons	Chas. Price	Com. Price
A	1	$1600	.....
C	2	$2275	.....

Texas Motor Car Assn., Fort Worth, Tex.

Trade Name, Texan.

Model	Tons	Chas. Price	Com. Price
T	1½	$1425	$1525
CX36	¾	$1100	$1100

The Tiffin Wagon Co., Harrison St., Tiffin, O.

Trade Name, Tiffin.

Model	Tons	Chas. Price	Com. Price
A	¾	$1100	.....
GW	1½	$2125	.....
MW	2½	$2850	.....
PW	3½	$3760	.....
RW	5	$5000	.....
SW	6	$5200	.....

Titan Truck Co., 35 25th St., Milwaukee, Wis.

Trade Name, Titan.

Model	Tons	Chas. Price	Com. Price
3½	3½	$4300	.....
5-6 ton	6	$5150	.....

Tower Motor Truck Co., Greenville, Mich.

Trade Name, Tower.

Model	Tons	Chas. Price	Com. Price
F	2	$2975	.....
G	3½	$4100	.....

Trabold Truck Mfg. Co., 810-12 Railroad Ave., Johnstown, Pa.

Trade Name, Trabold.

Model	Tons	Chas. Price	Com. Price
TJ	1	$1200	.....

Traffic Motor Truck Corp., St. Louis, Mo.

Trade Name, Traffic.

Model	Tons	Chas. Price	Com. Price
..	2	$1395	.....

Transport Truck Co., Mt. Pleasant, Mich.

Trade Name, Transport.

Model	Tons	Chas. Price	Com. Price
50	2	$2585	.....

Triangle Motor Truck Co., St. Johns, Mich.

Trade Name, Triangle.

Model	Tons	Chas. Price	Com. Price
A	1½	$2185	.....
B	2½	$2850	.....

Twin City Four Wheel Drive Co., Inc., 2482 University Ave., St. Paul, Minn.

Trade Name, Twin City Four Wheel Drive.

Model	Tons	Chas. Price	Com. Price
B	3½	$4750	.....
A	5	$5250	.....

Union Motor Truck Co., Second and Water Sts., Bay City, Mich.

Trade Name, Union.

Model	Tons	Chas. Price	Com. Price
BM	2½	$2375	.....
BL	2½	$2375	.....
C	4	$3500	.....

United States Motor Truck Co., Cincinnati, O.

Trade Name, United States.

Model	Tons	Chas. Price	Com. Price
E	2½	$2800	.....
H	2½	$3250	.....
D	3½	$3500	.....
J	3½	$3950	.....
K	5	$4850	.....

Universal Service Co., 1120 Grand River, Detroit, Mich.

Trade Name, Universal.

Model	Tons	Chas. Price	Com. Price
A	3	$3400	.....
D	2	$2800	.....
C	1½	$2000	.....
L	3½	$3700	.....

Velie Motor Corp., Velie Place, Moline, Ill.

Trade Name, Velie.

Model	Tons	Chas. Price	Com. Price
24, special	¾	$1700	.....
25B	2	$2950	.....
26B	3½	$3900	.....

Viall Motor Car Co., 19 E. 111th St., Chicago, Ill.

Trade Name, Viall.

Model	Tons	Chas. Price	Com. Price
..	2	$2500	.....

Vim Motor Truck Co., 23rd and Market Sts., Philadelphia, Pa.

Trade Name, Vim.

Model	Tons	Chas. Price	Com. Price
..	½	$945	.....
25	1	$2195	.....
26	¾	$1200	.....
22	2	$3250	.....
23	3	$3950	.....

Walter Motor Truck Co., 110 West End Ave., New York, N. Y.

Trade Name, Walter.

Model	Tons	Chas. Price	Com. Price
..	5	$5500	.....

Ward LaFrance Truck Co., Inc., Elmira, N. Y.

Trade Name, Ward La France.

Model	Tons	Chas. Price	Com. Price
2A	2	$3350	.....
3A	3½	$3750	.....
3½ A	3½	$3900	.....

Wayne Automobile Mfg. and Eng. Co.

Trade Name, Wayne.

Model	Tons	Chas. Price	Com. Price
A	1	$1850	.....
B	2	$2900	.....
C	3½	$4100	.....
D	5	$5000	.....

Western Truck Mfg. Co., 122 N. Curtis St., Chicago, Ill.

Trade Name, Western.

Model	Tons	Chas. Price	Com. Price
..	7	$5700	.....

White Motor Co., St. Clair and 39th Sts., Cleveland, O.

Trade Name, White.

Model	Tons	Chas. Price	Com. Price
GBBE	¾	$2300	.....
TBC	1½-2	$3300	.....
TJ	3	$4100	.....
TG	5	$5000	.....

White-Hickory Wagon Mfg. Co., Atlanta, Ga.

Trade Name, White Hickory.

Model	Tons	Chas. Price	Com. Price
F	1	$2000	.....
H	1½	$2400	.....

Wichita Falls Motor Co., Wichita Falls, Tex.

Trade Name, Wichita.

Model	Tons	Chas. Price	Com. Price
L	1½	$2350	.....
M	2	$2750	.....
R	2½	$2950	.....
RX	2½	$3400	.....
O	3½	$3750	.....
S	6	$5400	.....

H. E. Wilcox Motor Co., 1030 Marshall St., Minneapolis, Minn.

Trade Name, Wilcox Trux.

Model	Tons	Chas. Price	Com. Price
A	1	$2100	.....
B	1½	$2775	.....
C	2½	$3250	.....
D	3½	$3950	.....
W	5	$5000	.....

J. C. Wilson Co., Warren Ave. and 15th St., Detroit, Mich.

Trade Name, Wilson.

Model	Tons	Chas. Price	Com. Price
..	1	$1750	.....
..	2	$2800	.....
..	3½	$3800	.....
..	5	$4600	.....

Winther Motor Truck Co., Winthrop Harbor, Ill.

Trade Name, Winther.

Model	Tons	Chas. Price	Com. Price
39	1½	$2100	.....
439	1½	$2100	.....
49	2	$3000	.....
459	2½	$3250	.....
69	3	$3800	.....
479	3½	$4900	.....
89	4	$4200	.....
109	5	$5000	.....
129	6	$5250	.....
149	7	$5500	.....

Myers Machine Co., 1002 Indiana Ave., Sheboygan, Wis.

Trade Name, Wisconsin.

Model	Tons	Chas. Price	Com. Price
B	1½	$1750	.....
C	2½	$2500	.....
E	5	$5000	.....

Witt-Will Co., Inc., 52 No. N. E., Washington, D. C.

Trade Name, Witt-Will.

Model	Tons	Chas. Price	Com. Price
WD2	2	$2850	.....

American Commercial Car Co., Gratiot Ave. and Detroit Ter. R. R., Detroit, Mich.

Trade Name, Wolverine.

Model	Tons	Chas. Price	Com. Price
C	1½	$2180	.....

SELBYVILLE AUTO CO.

The Selbyville Auto Co., to deal in motor trucks, passenger cars, etc., has been chartered with $10,000 capitalization by Edward V. Baker, James M. Tunnell and W. G. Williams, Selbyville, Del.

SIEGFRIED WITH AUTO BODY CO.

J. B. Siegfried has become general sales manager of the Auto Body Co., Lansing, Mich. He was formerly general manager of the King Motor Car Co., Detroit.

ENERGETIC METHODS REQUIRED BY MODERN AUTOMOBILE SALESMANSHIP

Manufacturers Seek Progressive, Up-to-Date Business Men, Keenly Alive to Possibilities of Trade Development as their Agency or Branch Representatives

HARDING and his wife had been thinking of buying an automobile, but Harding was greatly surprised one morning when he awoke to find seven salesmen with cars outside waiting for him.

"How in wonder did they find out?" he asked.. "I thought no one knew we might buy a machine."

His wife suggested that he try to recall if he had told anyone else. Harding finally remembered that when he was getting shaved the previous day he had remarked to the barber that he was contemplating the purchase of a car.

The barber, hoping to get a commission if he should give the tip that resulted in the sale to Harding, had tipped off the automobile dealers. In giving the information to all seven he was taking no chances, as he figured one of them would land the sale and he knew he would get his rakeoff no matter which one was successful.

The story of Harding's experience gives a good insight into automobile salesmanship. The salesman must first ascertain who might buy a car and then he must get out and try to sell him one. The competition is very keen, and the salesman who is the best hustler has the best chance of winning.

There are various ways of obtaining tips on prospective buyers, and the salesman must be resourceful and constantly vigilant if he is to get them. Many sales result from prospects coming to the sales rooms to inspect cars, but many more are made through tips.

The Salesmen Must Be Energetic.

The dealer who is to succeed must employ live wire salesmen who are not afraid to hustle. When information is received that John Jones is thinking of buying a car, the dealer must have his salesman get on Jones' trail immediately and stick to it. If he doesn't some other dealer is fairly certain to make the sale.

However, in his enthusiasm to make sales the dealer must realize that he is in business permanently, and that he cannot afford to make sales that will have an ill effect upon the future of his business.

In selling automobiles a dealer makes a permanent profit only when he sells a car to a buyer who will be satisfied with it. He suffers an actual financial loss when he sells to a person who will be displeased, as the reaction from the sale will more than offset the profit originally represented by the commission.

The value of a sale must be judged not only by the immediate commission, but also by its worth to the good will and future of the business.

Therefore, automobile salesmanship may be broadly defined as consisting principally of selling automobiles at a permanent profit.

Service is a very important factor in automobile salesmanship. Service begins when the salesman first meets a prospect. The salesman must make a careful study of the prospect's needs, and must advise him honestly as to the sort of a car he should buy.

Should Be Frank with Prospects.

If the salesman has no automobile in his line that meets the prospect's requirements, he should frankly tell him so, instead of endeavoring to sell him a machine that would not be suitable.

The actual sale of the car is but an intermediary step. The salesman must follow up the sale and see that it turns out satisfactorily. He must see that the purchaser is given an instruction book, other literature and information to enable him to obtain sufficient knowledge of the car so that he will not mistreat it.

When the buyer is not furnished with such information he is unable to take proper care of the car, and he may cause the dealer unnecessary expense and trouble by bringing it in for frequent repairs. Not only that, but if the mechanism goes wrong the buyer is apt to blame the machine and criticise it unjustly when talking to his acquaintances, thus giving them a bad impression of the car and possibly deterring them from buying one of that make.

The buyer should be given every bit of information that will make it possible for him to get the best service out of the automobile. He should be fully acquainted with any peculiarities it may have in order that he may be on the alert for any trouble.

A dissatisfied owner is a big liability and his criticism, just or unjust, will so reflect upon the car and the dealer that business will be lost.

On the other hand, a satisfied owner is the biggest asset a dealer can have. Such a buyer possesses great advertising value, as he is an enthusiastic booster for the car and is sure to urge his acquaintances to buy that make. The automobile dealer or salesman who can point to a large number of satisfied buyers has a reasonably clear field ahead.

The Salesman's Capital Is Time.

The fallacy that a good salesman of automobiles, or of any other merchandise, must be "a born salesman" has long been exposed. Business ability, honesty and a good knowledge of human nature will enable anyone to sell automobiles.

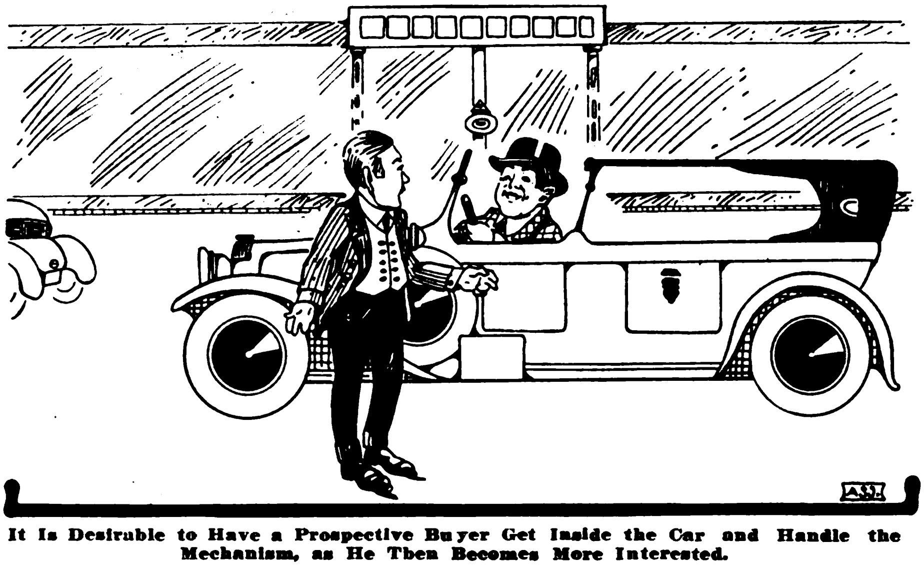
The success of the average automobile salesman is usually in ratio to the amount of time he invests in the business. The man who plugs at his work throughout the entire day, seizing every opportunity that presents itself, is certain to make a bigger success than the one who prefers easy hours and economy of energy.

Before delving into the subject it is well to explain what the automobile manufacturer expects of men who are to represent him. The manufacturers have made a detailed study of automobile merchandising, and they know just what qualities a dealer or salesman must possess if he is to succeed.

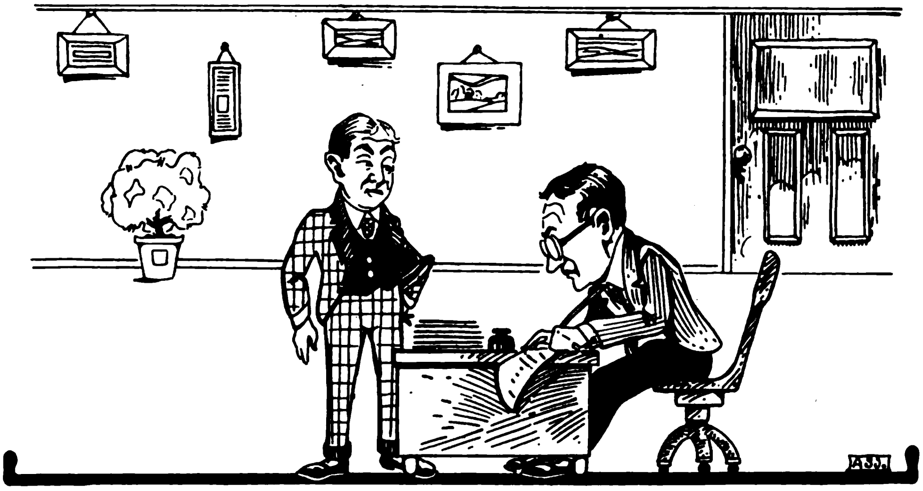
Take for instance a man who desires to sell some car—let us call it the "Triumph" car—in a certain city or town. The manufacturer tells him he can have the agency if he can live up to the following fundamentals of representation:

Territorial Contract Requirements.

(1) A progressive, up-to-date business



It Is Desirable to Have a Prospective Buyer Get Inside the Car and Handle the Mechanism, as He Then Becomes More Interested.



A Salesman Should Not Try to Do Business with a Man Who Is Busy, but Should Wait Until He Can Get His Undivided Attention.

man keenly alive to the possibilities of Triumph business in his territory, and who sees in his agency contract the foundation of a permanent success demanding his utmost efforts every working day in the year.

(2) Suitable place of business of clean, dignified appearance, and of a size and character to properly care for the varied activities of the Triumph business which he handles.

(3) A stock of genuine Triumph parts commensurate in size with his contract which will be sufficient to make prompt replacements and keep in active service every Triumph car in his territory.

(4) An adequately equipped repair shop to give prompt and efficient attention to any repairs or adjustments needed on Triumph cars.

(5) Competent mechanics familiar with the construction and operation of Triumph cars and fully qualified by such knowledge to maintain the standard of Triumph service for Triumph owners.

(6) Comprehensive bookkeeping and follow-up sales system which will show instantly the financial status of the departments of his business, the condition of his stock room and the prospects, etc., throughout the territory.

(7) Absolute cleanliness in the sales room, the supply department and the shop. It is not enough that the outside of the building be presentable, because there is nothing more repelling to a visitor than unwashed windows, dusty furniture, dirty floors, ill-kept walls and ceilings, etc.

(8) A suitable outside display sign which will conspicuously advertise his place of business as the authorized Triumph agency and service station for that locality.

(9) The adoption in his business relations, both with Triumph buyers and owners, and local business houses, of methods which will maintain the reputation of the Triumph Motor Co. for square dealing and the highest character of business ethics.

An Analysis of Fundamentals.

The foregoing fundamentals of representation as worded are actually demanded by one automobile manufacturer. Other makers of cars have similar rules, varying but little in substance. The fundamentals apply to an agency for a low priced car as well as to the representation for a high priced machine.

The first fundamental calls for "a progressive, up-to-date business man." The automobile trade is "a progressive, up-to-date" business, and its very nature demands men who possess every essential qualification to represent it.

The agent must be "keenly alive to the possibilities of Triumph business in his territory." That means that the agent who is to be successful must possess imagination and optimism.

And he must see "in his agency contract the foundation of a permanent success demanding his utmost efforts every working day in the year." In other words, pessimists and slackers are not wanted.

The second fundamental requires a "suitable place of business," etc. The need for such will be readily appreciated.

The third fundamental requires a fair stock of parts "to make prompt replacements and keep in active service every Triumph car in his territory." The manufacturer realizes that every one of his cars that is in proper service is an aid to him and the dealer, and the car out of service is likely to prove bad advertising.

It will be noticed that the manufacturer does not demand mechanical knowledge or ability of his representative, but he does insist upon the dealer maintaining a properly equipped service station with competent mechanics.

The sixth fundamental, calling for "comprehensive bookkeeping and follow-up systems," applies to any business. The three other fundamentals also equally apply to any other merchandising enterprise.

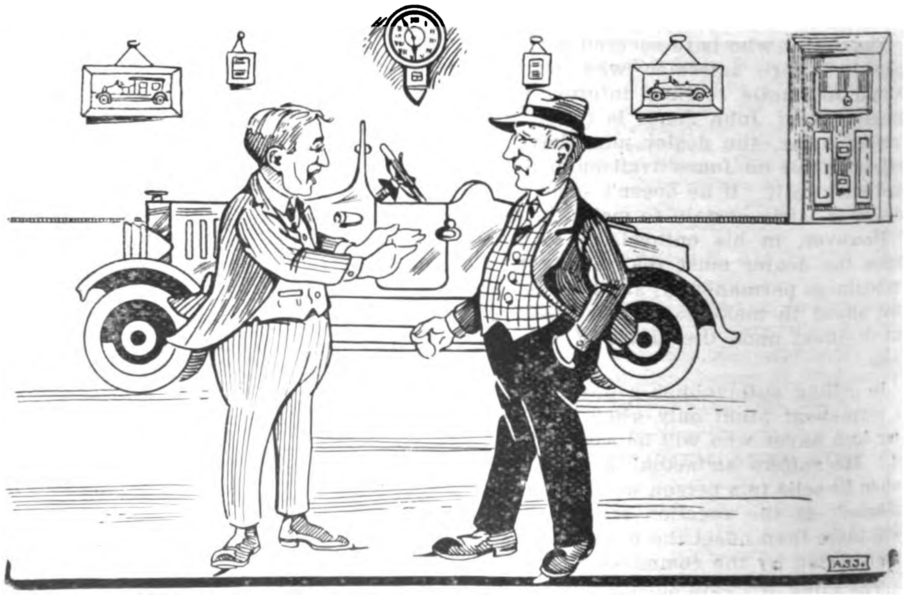
Considering Future Business.

To sell an automobile is a comparatively simple matter, if the salesman does not have to take into consideration what effect the sale will have on the future of the business of himself and employer. But that is not automobile salesmanship. The fact is it is often harder to refuse to sell a car than it is to sell one.

Suppose a dealer is handling a light automobile truck and a man whose business requires heavy hauling almost exclusively desires to buy one. The successful dealer will decline to sell one of his trucks when he knows it will not be suitable to the man's business, no matter how firmly the man insists upon placing his order for one. In convincing this man that he is seeking the wrong sort of a truck for his business the dealer may have more difficulty than he would in convincing some other prospect that he needs a light truck.

The qualifications for an automobile salesman do not differ materially from those demanded for a salesman in any other high grade line. He must be able to meet big men in an equality. He must have plenty of backbone and the "get there" spirit.

A good salesman, whether he sells automobiles or any other form of merchandise, should have good health, honesty, abilty, industry and knowledge. He must always keep his promises, be true to every trust, loyal to his employer, po-



There Is an Advantage in Getting a Prospect to Visit the Salesroom, Where He Will Be in the Atmosphere of Automobiles.

lite, moderate in habits. He must be clean, cheerful, courteous. He has to be a thinker and a worker.

Here are a few qualifications mentioned in newspaper advertisements for automobile salesmen: "Must be ambitious," "possess impressive personality," "a real producer," "energetic, reliable salesmen with ability."

Must Have Self-Confidence.

A good automobile salesman is ambitious to forge ahead. He should always keep before him the belief that he is going to win. When he starts on something little or big he should be determined to carry it through. He should realize that most obstacles are great only through lack of trying diligently to overcome them.

He should not fear criticism and should realize that fear is a salesman's worst enemy. The salesman who is inclined to walk around the block three or four times before getting up enough courage to call on a prospect has little chance of success. Fear is partly due to selfishness, for it comes through thinking too much about oneself. A salesman may have a good personality and appearance, but fail through lack of courage.

The automobile salesman should give to his employer's proposition and his customer's proposition that constructive thought that makes his opinion valuable to both his customer and his employer. He should never eliminate the possibility of future business. He should not misrepresent. He should not split commissions or make excessive allowances on used cars.

The salesman should not waste his time, but should comb his territory thoroughly. He should realize that the more prospects he interviews the more cars he will sell. He should cooperate with his employers in every way, studying all of their advertising and other literature so that he can make his own selling plans fit into his employer's and the manufacturer's plans.

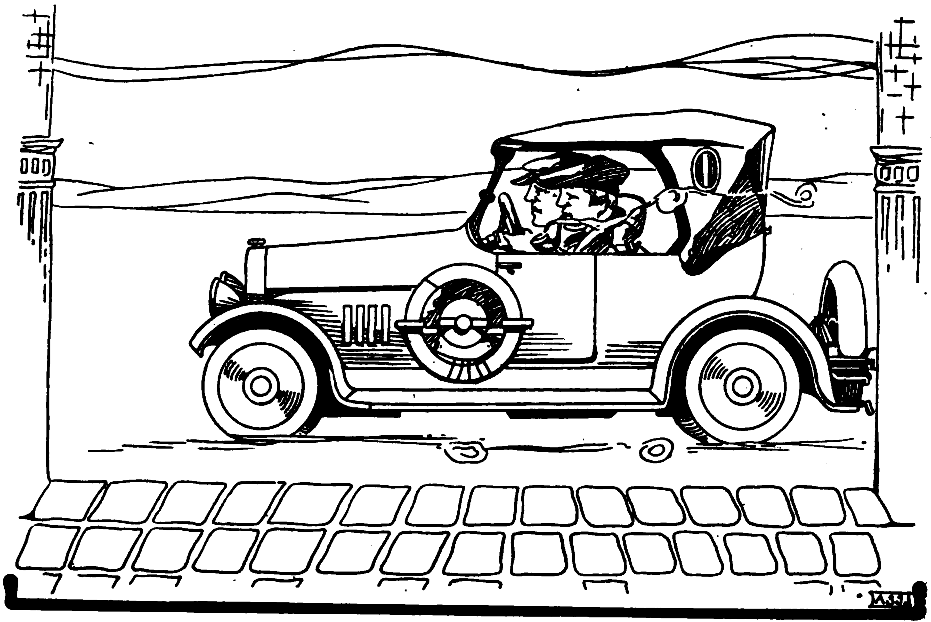
Must Study Business Constantly.

He should study the automobile business continuously. He should be alert for ideas of other salesmen and manufacturers, for no man is big enough to live and progress by his own ideas alone. He should put intelligence into all of his work. He should read trade papers so as to keep informed of all important developments in the automobile industry.

Realizing that a man progresses so long as he is willing to learn, the automobile salesman should know how to listen, to observe, to read—and he should think when he reads—and to discuss.

A few hours work a day will not make him successful. Time is his capital and he should get out and hustle during business hours. He should carefully plan his day's work. He should keep healthy, active, wide awake.

In few other lines of merchandising does a salesman have to overcome such a variety of objections as he meets from prospects in the automobile trade. Almost every case presents some new phase and on this account the salesman must rely mainly on spontaneous talks.



Few Prospective Buyers Now Desire Demonstrations, but Those Who Ask Them Should Be Readily Accommodated.

However, there is a distinct advantage in having prepared selling talks, as these represent a cumulative argument. Even though the salesman may not get the opportunity to deliver a complete selling talk, he will find that extracts from it will often fit very nicely into his spontaneous talks.

Every objection must be met squarely. The salesman should not glide over it, but should clear the prospect's mind of the particular point. The salesman should be discreet and not antagonize. He should always avoid sarcasm.

The prospect should be encouraged to ask questions, as they usually give the salesman good openings. The prospect who simply listens to the salesman and does not ask questions or voice objections is often a very hard man to "close."

Must Not Accept Failure.

Such statements as "I do not care to buy," "You are only wasting your time," "I am not ready to buy now," should not be taken too seriously, as a great many sales are made to persons who voice these utterances.

The salesman should strive to keep from making a bore of himself. He should give the prospect plenty of opportunity to do some of the talking. Some salesmen talk themselves out of sales. There is a time to listen, as well as there is a time to talk. If the prospect wants to say something, accord him the courtesy of listening to him and take real interest in what he says.

The average prospect does not like a salesman to use up his time by telling funny stories. When the prospect wants such entertainment he can get it in a theater.

The salesman should not unnecessarily argue with a prospect, but should discuss the matter with him. The difference is this: A discussion is a mutual attempt to reach a right conclusion, whereby an argument is often an attempt to put something over on the other fellow. Don't try to ram ideas down his throat. Don't bewilder him with a mass of trifing data. A salesman should always preserve a sense of humor. If he becomes dissatisfied he should keep it to himself. He should not be misled by his own dislikes. He should enjoy his work, for the man who fails to get some comfort out of his work does not make a good salesman.

The good salesman knows how to smile. He radiates enthusiasm, for he knows that enthusiasm is contagious. He never exhibits a grouch, for he knows that a grouch is also contagious. He recognizes that patience is a virtue. He doesn't get discouraged when he has a dull day. He doesn't become impatient and give up a prospect because the prospect is slow in making up his mind. He never lets his temper get the better of him. No matter how far out of temper a prospect may be, the salesman must keep his own.

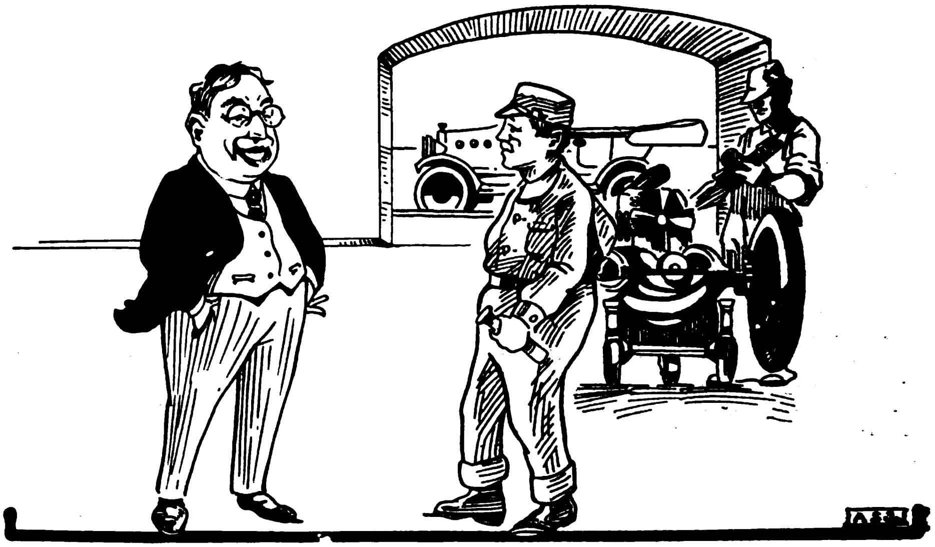
The prospect must be carefully studied, and the salesman should find a good way of approaching him. The peculiarities and temperament of the prospect must be given proper consideration and the salesman must learn what arguments will best appeal to him.

Salesmanship Largely Judgment.

The salesman should not insist upon talking to a prospect who is busy. He should wait until he can have the man's undivided attention. If the prospect can be induced to visit the salesrooms, the sales man will find it easier to arouse his interest there, being in the atmosphere of automobiles.

There is a psychological advantage in inducing the prospect to get into the car and handle the mechanism, as he then becomes more interested and enthusiastic. If he desires a demonstration he should have the opportunity of thoroughly testing the machine. However, nowadays, comparatively few prospective buyers ask demonstrations, except when the car is a new make or unknown in the market.

The "cold-blooded" type of sales man cannot make a big success. There must be sentiment in the automobile business, just as there is in every other business. George A. Simpson, sales manager of the



The Manufacturer Insists Upon His Agent Having a Good Repair Shop with Expert Mechanics.

Steel Co. of Canada, Ltd., Hamilton, emphasized this when he told the following story:

SENTIMENT IN BUSINESS.

"There is sentiment in business, and a whole lot more than we realize; when there is none I want to quit doing business. For a salesman I know of no other quality more helpful to his success than sentiment, if he will use tact to reach the sentiment side of his prospect. I do not mean by that that he necessarily start an investigation or search for sentiment, for if he did that would be calculation on his part and even if he discovered it he could not make use of it, as sentiment must be discovered by sentiment to be of mutual advantage in preparing common ground. I have had scores of instances in my experience that have proven beyond doubt the truth of my contention.

"Some years ago I was selected by the interests I was associated with to go through the South for them to establish three or four manufacturing companies, to manufacture finished products from sheet iron, sheet steel, etc. I was to promote these companies along the lines of home industry for the South. They were to be southern companies, financed and operated by southerners. I called on the boards of trade and on different prominent men in the cities and towns I visited and right away everybody fell into line with the idea of home industries. In one of the cities I visited everybody was enthusiastic. They all wanted to see a manufacturing plant in their community. Therefore I went round to raise from $150,000 to $200,000 to start the concern.

"At once there was a difference. Everybody liked the idea of having the industry there, but no one was ready to put up any money for it, they all wanted the other fellow to do it. There was one man in particular they wanted me to call on. Almost everybody I spoke to asked the same question: 'Have you called on Mr. Blank?' Before long I discovered who this Mr. Blank was whom they were all so anxious for me to see. He was President Blank of the leading bank in that state and when first I saw him he looked very much to me like the familiar caricature you expect of a crusty old banker, all money bags, with no sentiment in his make-up.

Boutonniere Founded an Industry.

"He received me with courtesy and heard what I had to say—he was a very fine old fellow, as I soon found out, but he would do nothing about my proposition until he had examined the papers I had prepared, showing facts and figures. These papers he had me leave with him and I went away. But before leaving him I noticed something that attracted me; something that might be a clue to sentiment. He wore in the lapel of his coat a very sweet nosegay of flowers. I made three calls on him subsequently and the flowers were always there, fresh and sweet, beautiful and charming. One day I decided to ask about the little nosegay and frankly, quite apart from the business altogether I did ask him.

"He held out his hand as I spoke about the flowers as I was just leaving and I could feel as our hands clasped that I had touched a sympathetic chord. 'Mr. Simpson,' he said, 'you ask about that little nosegay. I have worn a flower like that in my coat ever since the first one was put there by my sweetheart, who is still my sweetheart after 40 years of married life.' And he told me how each morning it was put in his buttonhole by the same hands, or if she were not there to do it, it was placed there by his daughter. We both stood and looked at one another and all I said to him was 'beautiful sentiment.'

"And then we sat down and talked about flowers—not about the business in hand—and by and by I got up to leave him. And just as we were parting, what do you think he said? 'By the way, Mr. Simpson, I am very much impressed with that proposition of yours. What amount do you think I ought to subscribe for?' He left it to me to name the amount. I had secured his confidence to that extent through the touch of sympathetic sentiment and when it came to putting his name down and I made a suggestion of $5000 or $8000, he said: 'Put me down for $10,000, and, by the way, put my brother on the list. He ought to go down for something in this company. Put him down for $5000. I promise you he will approve of it when you call on him with my suggestion.'

Confidence in a Financial Leader.

"And after that, gentlemen, all that Mr. Simpson had to do down there was just go round with a list and get the names of those who were eager to get on it for various amounts; because they found that the names of the two Mr. Blanks headed the list and they had profound confidence in their judgment.

"And if you should ever visit the South and go to this city, you will find there the Metal Products Co. running today, a very successful institution, and that concern came into being largely through a little nosegay in the buttonhole of a banker's coat, for those little flowers were the key that opened the door of sentiment that aided us in reaching common ground.

"That incident shows what sentiment means to a salesman and how essential it is that we train our minds along certain lines. I grant you that some men with whom you may have to do business are cold blooded business men, and if a man is a cold-blooded business man you must meet him on that ground until sentiment is reached and confidence established. If you recognize and practise these laws of thought and attraction, then as a salesman you will have no trouble in making sales. In my own experience I have found it so—and I am not saying this boastfully—that as a result of respecting these principles, selling is to me a delightful visit to the man to whom I sell and my entire interview is very seldom taken up on the subject of business. We converge on general lines of mutual interest; it may be about flowers or something in which we both have common interest and I usually leave with a good sized order.

"And further, my experience proves that the average buyer or business man is very well informed on many subjects, that he has his sentiment and sympathies and often he is an interesting conversationalist. If you can reach him through these channels you will in all probability establish confidence and respect. After that, getting his business is an easy matter, because he feels you will, wherever possible, safeguard his interests and this you must do to the limit."

MACKIN COVERS OHIO FOR BLACK & DECKER.

J. F. Mackin, located in Columbus, O., recently became connected with the Black & Decker Manufacturing Co.'s organization and will represent the company throughout the entire State of Ohio. Mr. Mackin has been with the portable electric drill industry for years. He was formerly connected with the Independent Pneumatic Tool Co. That the Black & Decker organization has made great strides is evidenced by the high caliber of men who have recently become associated with it.

(Continued from Page 20D.)

chauffeur driven car. But the habit of owners doing their own driving has become so common that the great bulk of the enclosed cars that have been sold at this year's shows are of the owner driven type—the sedan, coupe, cabriolet and certain types that may be made into either a single or a double compartment car.

Wonderful Market for Trucks.

War opened a wonderful field for the motor truck. It established trucks as a dependable means of commercial transportation to a point which might have taken years in ordinary times to accomplish. There are many firms in this country which probably would not have a single motor truck today if necessity had not forced them to motorize their equipment. Having found the benefits of motor truck haulage they will not again be without it. Instead, they are planning to enlarge their facilities. The next few years are bound to see tremendous gains in the truck industry. There is no one particular class of firms or style of trucks that will be affected by this new development. Every business will want trucks of whatever particular type is best suited to it.

The bugaboo that the government was to flood the market with used cars has been smashed to smithereens. Col. Fred Glover, a member of the War Department Bureau of Supply Property, whose duty it is to find profitable uses for the army's surplus equipment, has said definitely that there are no army vehicles for sale. If any should be offered the trade will be consulted concerning the method to be used in disposing of them. He said that he believed the post office and other Federal departments would be able to take all the cars and trucks the War Department might spare.

An Era of Road Building.

This spring sees the good roads movement well under way. The government's appropriation to aid the states in building roads is being taken advantage of, and from all parts of the country come reports of new and gigantic road projects.

Never before has foreign trade opportunity knocked harder at the doors of American manufacturers than it does today. The manufacturers of automotive equipment are fully alive to the possibilities, and they are preparing to take advantage of them. The billion dollar fund of the government to aid American manufacturers in getting export trade is bound to be a big incentive.

The possibility of a combination of leading American automobile and truck makers for the purpose of developing foreign trade for their products, is an outcome of the recent export managers' convention of members of the National Automobile Chamber of Commerce, held in New York.

AUTO LIGHT HAULING CO.

The Auto Light Hauling Co., Inc., Rochester, N. Y., has been chartered with $5000 capitalization by E. J. Werp, A. A. and A. J. Kirchhoff, Rochester.

JOBBERS ASK MAKERS TO ABSORB EXCISE TAX.

The Southern Automotive Equipment Jobbers' Association at a meeting March 22, in Birmingham, Ala., adopted this resolution:

"Whereas the tax on automobile accessories, tires, tubes and parts, which became effective Feb. 25, 1919, is paid to the government by the manufacturer, importer or producer; and,

"Whereas the jobber, distributor or dealer is not in position to pass this tax on economically, as a tax; and

"Whereas the apparent intention of the government is to collect this tax with the least disturbance to the trade and friction in the minds of the ultimate consumers; and

"Whereas considerable confusion is being caused because of the various methods used by manufacturers in passing on this tax; and

"Whereas the Southern Automotive Equipment Jobbers' Association believes that a uniform method of applying this tax is desirable;

"Be it resolved, by the Southern Automotive Equipment Jobbers' Association in meeting assembled at the Tutwiler Hotel in Birmingham, Ala., March 22, 1919, that all manufacturers, importers or producers of automobile accessories, tires, tubes and parts absorb this Federal excise tax, making returns direct to the government and, if necessary, provide selling schedules to enable the jobbers and dealers to resell goods without mentioning the tax."

BIG FOREIGN BUSINESS FOR COLUMBIA SIX.

The Columbia Motors Co., maker of the Columbia Six, has retained its selling connections with the Dutrieu & Co. of Paris. Some time ago a Columbia Six model was shipped to the Paris firm for exhibition at the Lyons fair.

W. L. Daly, sales manager of the Columbia Motors Co., says that indications are that the coming season's foreign sales will be double what they have been in any previous year. He ascribes this not only to the unusual prosperous conditions that exist throughout the world, but also to the change in attitude of the majority of foreign buyers toward products made in the United States.

Practically without exception all the Columbia foreign dealers report that there is a friendly feeling throughout the world toward American built products, which has never been felt before.

LARGER QUARTERS FOR V. A. NIELSEN CO.

The V. A. Nielson Co. is now located in larger quarters at 708 Beacon street, Boston. In this station the company has more than 5000 square feet of floor space. The company has just taken over for New England the entire sales and service for the Dayton starting, lighting and ignition system for Ford cars. It is also New England representative for the Connecticut ignition systems.

AUTO IN FURNITURE STORE NOVEL DISPLAY.

The Paine Furniture Co., Boston, in recognition of automobile show week, found a new use for a motor car in arranging a display for a Peerless roadster, loaned by the Boston Beacon Motor Car Co. The car was set in one of the large show windows of the Paine store amid an exhibition of summer furniture and draperies. It was finished in Brewster green, with French gray wheels.

Considerable trouble was apprehended getting the car into the window. The car measured 67½ inches wide, while the doorway through which it had to pass had a width of but 68 inches. Carpenters planned to widen the doorway and it was thought that it would be necessary to remove parts of the machine, but the young man who drove it to the store guided the car over a two foot curbing and into the shipping room, where he twisted around several posts, turned a sharp corner and then drove through the narrow door without marring the machine or even scratching the door frame.

RICKENBACHER GUEST OF BAY STATE AUTO MEN.

Capt. "Eddie" Rickenbacher, ace of aces of the American air force, was the guest of the Bay State Automobile Association at a luncheon at the Hotel Victoria, Boston. He urged the motorists of Boston to take the initiative in having an airdrome erected there.

He pointed out that just as surely as the motor car has brought good roads, so the airplane will bring the need of airdromes in the centers of population, and the cities that first make provision for it will become the favorite stopping places on the lanes of air traffic.

Within a few years, he predicted, all the fast long distance travel from Boston to New York, to Chicago and even to California, will be through the air. In the evening he spoke in Symphony Hall, relating war experiences.

IAMS HEADS WINTON BRANCH IN PHILADELPHIA.

The Winton Co. announces the appointment of James E. Iams as acting manager of its Philadelphia branch house, to succeed Albert E. Maltby, resigned. Mr. Maltby has been manager of the Philadelphia branch since it was opened nearly 18 years ago. He leaves of his own accord, with high regard and best wishes of the Winton officers and staff. Mr. Iams entered the automobile trade in 1905. Since 1917 he has been doing special road work as sales supervisor in territory covered by various Winton branch houses.

PULASKI FIRM CHARTERS.

The Pulaski Motor Sales Corporation, Pulaski, N. Y., has been incorporated with $15,000 capitalization by William U. D. Carnes, W. H. Enos and J. L. More, Pulaski.

PLATE V.

MODEL SERVICE STATION AND SALES ROOM.

Two-Story Fireproof Structure Complete with Show Room, Machine and Repair Shops—Generous Spacings and Modern Equipment

Designed by the Architectural Department of the Automobile Journal Publishing Co.

THE accompanying plans offer a suggestion for an ideal automobile building to be used by an up-to-date, progressive dealer, and its arrangements permit of its use for practically every branch of the trade in which he can conveniently engage.

Facilities are provided for handling the agency for one or two new cars, and the appointments are such that the dealer may handle used cars and take live or dead storage. Space is also provided for the care, renovation and repair of cars. In fact, an examination of the plans will reveal that a careful survey has been taken of the progressive dealer's requirements, which has been taken into consideration in the design offered.

Having provided for all the practical needs of such a structure, the architect has taken into consideration the value of nice appointments where customers are received and accommodated in addition to providing a suitable facade, which is valuable as an advertising feature, a fact testified to by the thousands of dealers throughout the country who have gone to considerable expense in having highly decorative fronts erected to their buildings whenever their means would warrant it.

This structure, of course, is primarily for a dealer in a fairly large city where business would pay for its erection, maintenance and a profit. It is designed to go on a corner lot 50x100 feet. On the ground or first floor plan is an entrance vestibule, leading off the main street. To the right of the entrance is the show room, where several cars may be exhibited and an accessory case set up with other stock displayed in glass cases on the walls. On the left side of the entrance is the office, which has an entrance leading into the garage floor and shops.

On the side street there is a service door leading directly into the garage and in front of the turn table. This arrangement enables the operator of the car to turn his machine in any direction and run it to any position in the garage, onto the elevator or into the repair shop. The latter room is fitted with two repair pits, although there is sufficient room to handle three cars at a time or possibly four.

Manouvering cars about inside of a building has always been found a troublesome problem, but the arrangement given in these plans, in relation to the layout of the building, seems to offer a simple and easy solution.

In one corner of the garage, out of the way of the passages from the entrances to the other points in the room, is a wash stand conveniently located near both the turntable and elevator, thereby facilitating the washing and storage of a car with little trouble.

A machine shop of ample dimensions is walled off in the rear left hand corner of the building and lighted by a huge skylight in the light shaft extending through the second floor to the roof. There is an entrance to the machine shop from the garage; also one to a passage back of the elevator, which leads across to the repair shop for the convenience of the machines.

On the second floor are toilet accommodations for customers, office employees, salesmen, a large floor area devoted to new and used car storage, supply and locker rooms and toilet for the employees. Entrance to the front of the second floor is reached by the main staircase, which leads into a hall similar to that on the first floor. To the right of this hall is a rest room and toilet for ladies and on the right similar accommodations for gentlemen.

In the centre of the rear end of the second floor is the elevator well, which divides the skylight over the machine shop from the locker and supply rooms and employees toilet. These rooms may be reached from the repair shop by stairs.

The exterior of the building is of terra cotta with tile inlay, backed with brick. Steel is used for the frame, large girders in the floor and roof supported on steel "H" columns in piers that are spaced as shown by dotted lines on plans. Reinforced concrete floors and roof slab are necessary to make it a fireproof structure.

Lighting and heating equipment must be of standard make and complying with insurance underwriters requirements. Fireproof specifications would also include steel sash throughout and an automatic roller door at the service entrance on the side street.

The gas tank and service pumps are located outside the entrance on the side street and are connected up so that cars may be filled either from the inside or transient customers may be accommodated at the curb. Lubricating oil reservoirs or tanks may be placed where found most convenient.

The construction cost of such a building with all modern improvements, of course, would vary according to labor conditions and material supplies in different localities, but a minimum estimate of $25,000 and a maximum of $30,000 would cover the costs approximately.

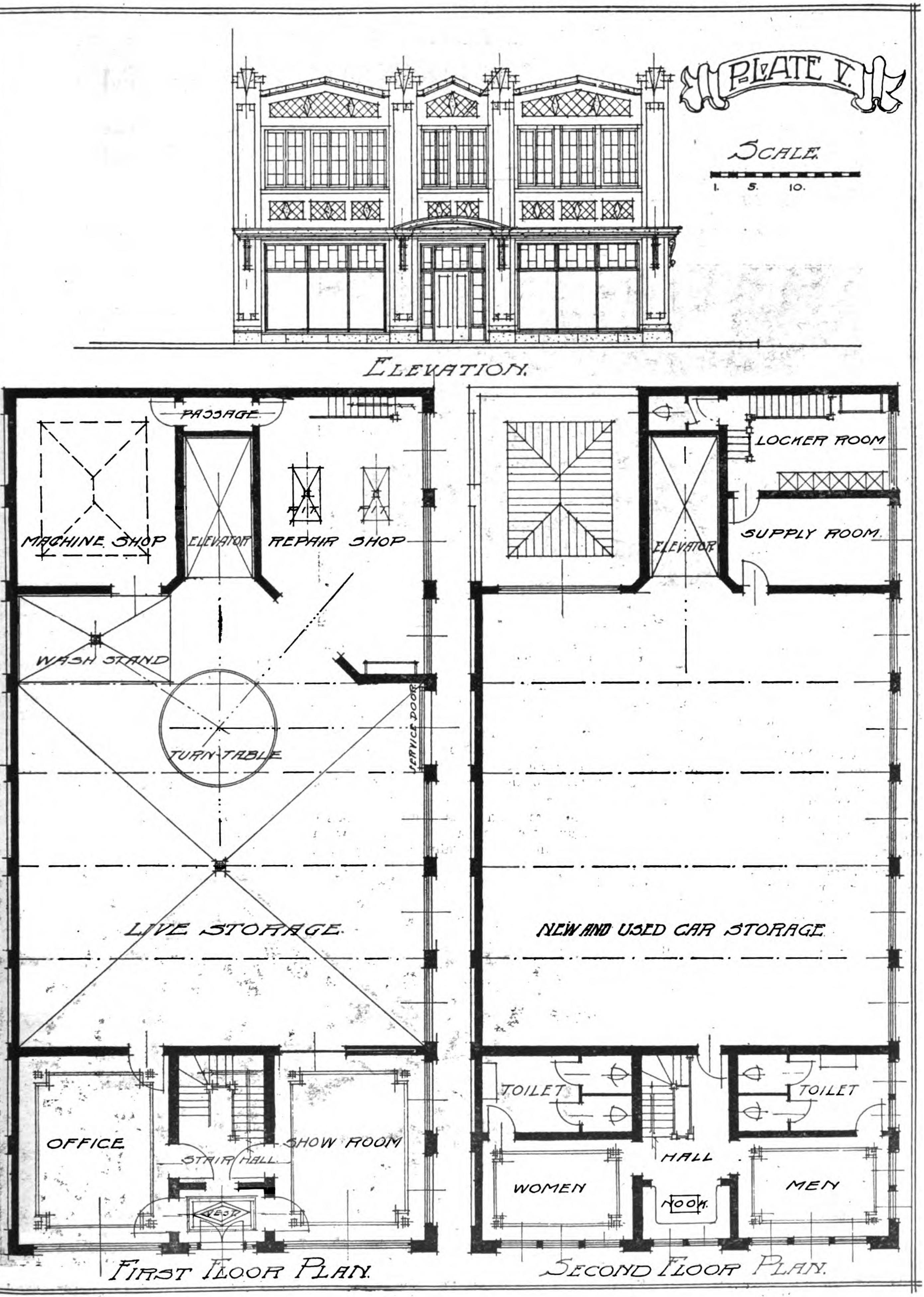


PLATE V.

ELEVATION.

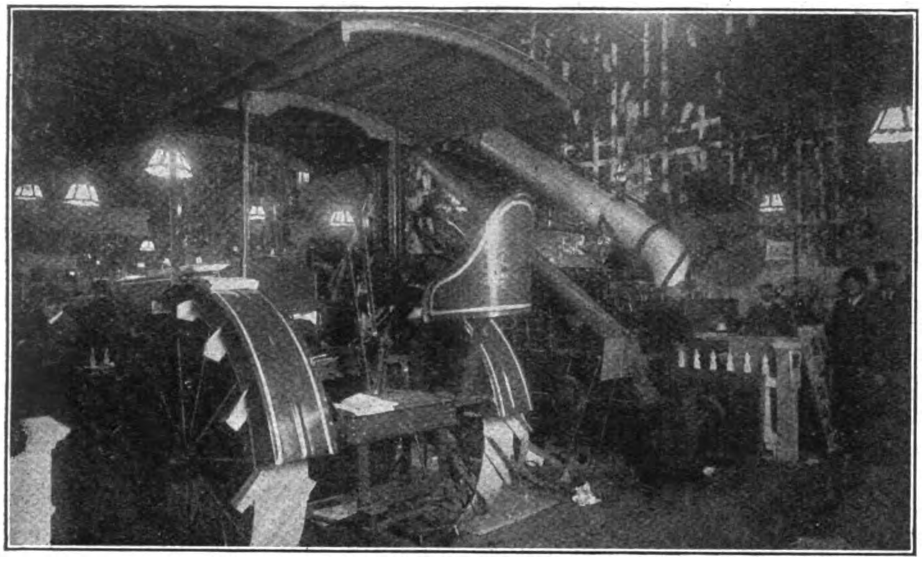
FIRST FLOOR PLAN.

SECOND FLOOR PLAN.

SCALE.
1. 5. 10.
PASSAGE
MACHINE SHOP
ELEVATOR
PIT
PIT
REPAIR SHOP
WASH STAND
TURN-TABLE
SERVICE DOOR
LIVE STORAGE
OFFICE
STAIR HALL
SHOW ROOM
VEST
LOCKER ROOM
SUPPLY ROOM
ELEVATOR
NEW AND USED CAR STORAGE
TOILET
TOILET
HALL
WOMEN
MEN
NOOK

KANSAS CITY'S TRACTOR SHOW WORLD'S LARGEST EXHIBITION

Nearly 400 Displays of Machines, Implements and Accessories and Supplies—Buyers from Two Continents—Many New Products of the Automotive Industry.



The Stand of the Port Huron Engine and Thresher Co., Showing the Port Huron Tractor, a Friction Driven Type.

NEW TRACTORS and many new ideas in tractor construction units, accessories and equipment were exhibited for the first time at the National Tractor Show at Kansas City. The show demonstrated that specializing parts manufacturers who have been such potent factors in the development of the motor car and the motor truck industries are now firmly allied with the tractor industry.

Seventy tractor manufacturers, 35 makers of tractor drawn implements and more than 200 makers of tractor parts, equipment and supplies had displays. The show was a remarkable success, surpassing in every respect all previous national tractor shows.

Nearly all of the tractors on display had some improvement, and there was plenty evidence of the tendency to bring refinement into tractor building. There were machines with inclosed gearing, better lubrication and better equipments of bearings. Many of the tractors have completely inclosed transmission systems, keeping the dirt out of all parts, and they have substantially the same four-clinder vertical engines that are used in the standard type power trucks.

Nearly every manufacturer had either a new model or some important improvement on the old types. The four-wheel type predominated. There was a splendid display of high class parts of tractors, such as engines, bearings, ignition apparatus, castings, stampings, carburetion devices and radiators.

The show was staged in what was probably the largest temporary building ever built simply for a brief show, the structure covering an area equal to that of two city blocks. More than 5000 tradesmen attended. The show was under the auspices of the Kansas City Tractor Club.

First Cutaway Tractor Display.

The first high class cutaway chassis display ever seen at a tractor show in this country was exhibited by the J. I. Case Threshing Machine Co. Something new in farm tractors was presented by the Heinze four-wheel-drive in which the two wheels on the right as well as the two wheels on the left drive as a single unit by enclosed chains. The machine is steered by declutching either the two wheels on the right when turning to the right or the two on the left when turning to the left, the steering being the same as with a creeper type.

Unusual features were also introduced by the Automotive tractor. This is driven by leather reins, the same as a horse. To turn to the right one rein is pulled, and to turn to the left the other is pulled. The clutch is disengaged with the pulling of both reins. A third rein operates the gearset. The tractor is of the four-wheel design. The engine is fitted with a governor and there is no throttle or spark control.

The Bethlehem Motors Corporation introduced a new tractor, an assembled machine. Military development caused Holt to bring out two new tractors, with Hyatt bearings in both. The Craig tractor has been redesigned. Covert now builds a complete unit gearset and rear axle.

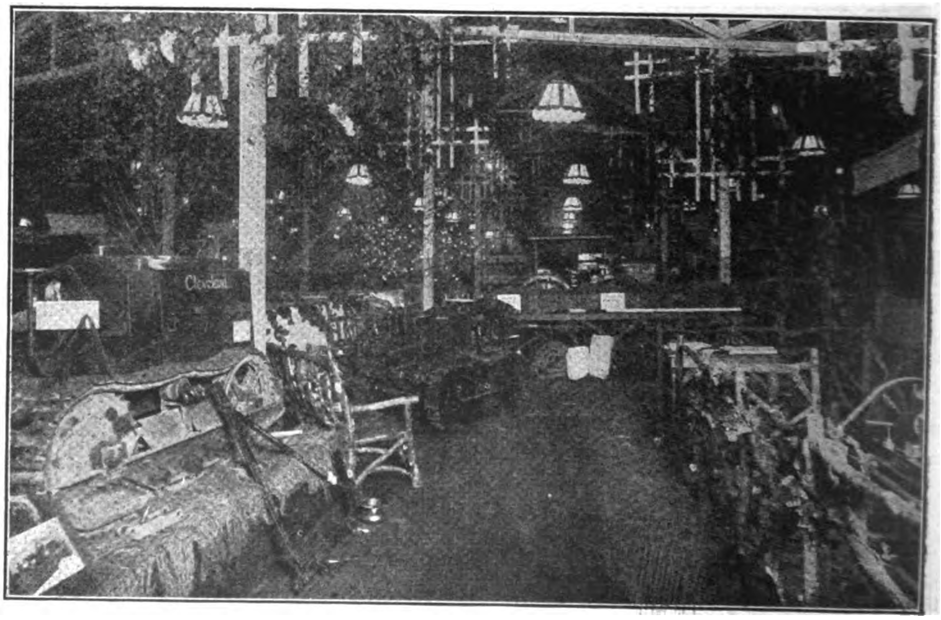
A military aspect was given by the exhibition of a whippet model of the British tanks, a British armored artillery tractor and a mine salvaged from the North Sea.

Drives are much divided between the oil "bull pinion" and the "live" axle systems. Radiators are coming to the motor car position, very few being crosswise.

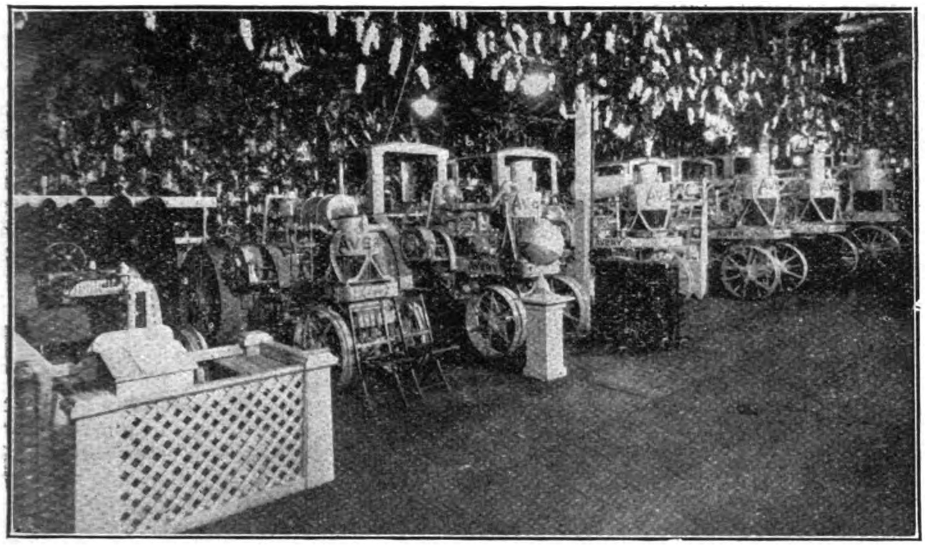
Had Shipment of 40 Carloads.

The Avery Co. had the largest space reservation of any at the show, with 2000 feet, and shipped to Kansas City a record consignment of tractors and threshers in 40 cars.

The Buda Co., Harvey, Ill., exhibited



The Cleveland Tractor, One of the Smallest of the Tracklaying Type, Was Shown with a Patent Implement Hitch for Varying Work.



The Largest Exhibitor Was the Avery Co., Builder of Seven Sizes of Tractors. In the Kansas City Freight Yard Was Shown 40 Carloads of Machines, Consigned to Southwestern Agents and Branches.

three new types of heavy duty tractor engines of the same general design as the 4¼ by 5½ inch Buda engine. The largest engine is a four-cylinder, 5 by 6½ inches, with a piston displacement of 510.5 cubic inches. Another has a bore and stroke of 4¼ by 6 inches, with piston displacement of 381.7 cubic inches. The cylinders on all are cast in block, have removable cylinder heads and are lubricated by a full pressure system.

The Townsend Manufacturing Co., Janesville, Wis., exhibited its standard kerosene tractor, which is built similarly to a steam tractor in appearance. A two-cylinder, twin type engine, is used with a speed of from 400 to 500 revolutions per minute, throttle controlled. It is of the four-cycle type, with the cylinders placed horizontally. The bearings are of bronze and are removable.

Two New Allis-Chalmers Units.

The Allis-Chalmers Manufacturing Co., Milwaukee, exhibited the new General Purpose and the new Allis-Chalmers 15-30 tractors. The new General Purpose is rated at 6-12 horsepower, and is of the two-wheel type, being balanced in the rear by a truck wheel, which is removed in pulling certain machines. The new 15-30 tractor is of the standard four-wheel type with the two rear wheels as traction members. The company's own engine, designed for kerosene burning, is used.

The Oliver Chilled Plow Works exhibited its complete series, including the Oliver No. 78 tractor plow in two, three and four-base sizes, an Oliver tractor disc harrow and an Oliver rolled pulverizer.

The Beeman Garden Tractor Co., Minneapolis, exhibited four Beeman garden tractors, one attached to a seven-inch bottom plow, another to a one-row corn cultivator, another belted to a washing machine and the fourth by itself.

The Wisconsin Farm Tractor Sales Co., Madison, Wis., distributor for the Wisconsin tractor, exhibited the new Wisconsin, which is practically the same as the maker, the Wisconsin Farm Tractor Co., Sauk City, Wis., has been marketing for the last two years. The final drive is now enclosed. The bull pinions are of high carbon steel, with heat treated cut teeth, and the bull gear is a steel casing.

The New Dragon Bearings.

The Fafnir Bearing Co., New Britain, Conn., displayed its full series of ball bearings, featuring the new Dragon type, which is a double row ball bearing without retainer, that will carry both radial and heavy thrust loads in either direction. The bearing is made in standard single row widths, each bearing carrying, however, double the number of balls of the corresponding single row bearing. This feature of construction is made possible by the fact that the two rows of balls are staggered in relation to one another.

The E. G. Staude Manufacturing Co., St. Paul, Minn., exhibited the Mak-a-Trac-tor, an attachment for converting a passenger car into a tractor. The company has been making the attachment for Ford cars for a number of years. A new attachment for use with the Overland No. 90 car was shown.

Madison-Kipp Lubricator Exhibit.

The Madison-Kipp Lubricator Co., Madison, Wis., exhibited its lubricator for single, two and four-cylinder engines. The exhibit included two cutaway lubricators and an engine model, with a cutaway lubricator in place to demonstrate the internal construction of the system. The new "Oil Kipps," force feed oil cups, were shown installed on a steering knuckle and axle. These oilers lubricate slow moving surfaces which do not make complete revolutions, such as steering gears, steering knuckles and spring bolts.

The Norma Co. of America, New York City, displayed Norma precision annular ball bearings, adapted for use in magnetos and other electrical equipment and also for radiator fans of trucks and tractors.

Amsco links, pins, grousers, sprockets, beveled gears, pinions and transmission gears were exhibited by the American Manganese Steel Co., Chicago. The exhibit emphasized a number of important uses to which manganese steel products can be put, especially in parts that work under heavy stresses, such as crawlers and tractor wheels.

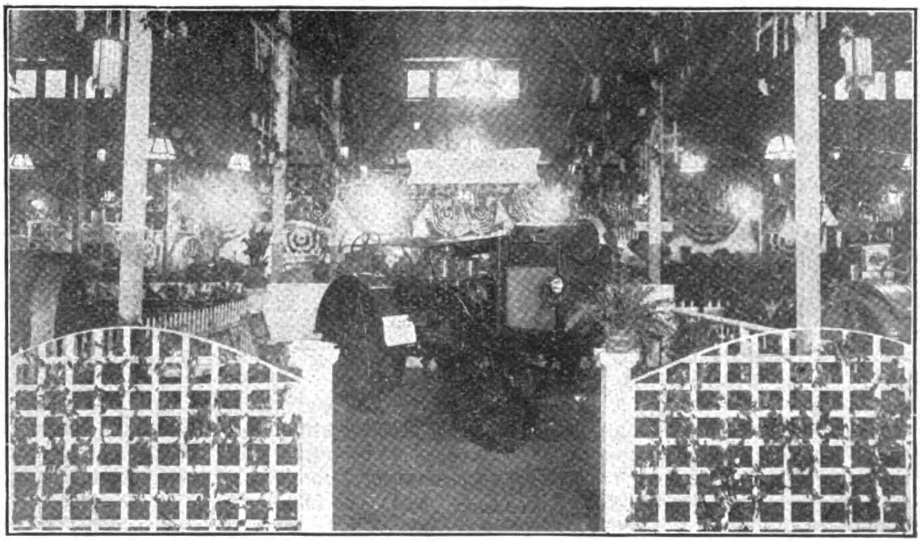
The Monarch Manufacturing Co., Council Bluffs, Ia., exhibited its line of lubricating oils and greases, the tractor grades being especialy featured.

Two New K-W Magnetos.

The K-W Ignition Co., Cleveland, O., displayed two types of magnetos, which were brought out for and used extensively on tanks made for the government and used on the western front in Europe. These were on eight-cylinder and a 12-cylinder model. The exhibit also included the company's standard four-cylinder type of K-W magnetos on which numerous changes have been made because of experience gained in war work.

The SKF Ball Bearing Co., Hartford, Conn., had an especially interesting display, which included elaborate engineering data for those interested in the application of bearings to various parts of the tractors. The company featured its line of ball bearings adapted to tractor use.

The Merchant & Evans Co., Philadelphia, exhibited its tractor clutch, which is to be made in two models. The small model has a rated capacity of up to 30 tons and the large model up to 50 tons.



The Allwork Tractor, One of the Best Known Makes, Was Displayed by the Electric Wheel Co. This Machine Represents Eight Years' Development.

Both models are of the dry disc plate type, the small one being a single dry disc plate and the large one a multiple dry disc.

The Fulton Co., Knoxville, Tenn., exhibited the automatic Sylphon temperature regulator, exhibited for the first time at a tractor show. The regulator is essentially a thermostatic control valve, acting upon the cooling circulation, to reduce the time it takes to heat the water to a temperature of maximum efficiency, obtaining this result by checking the flow of either cooling medium, water or air, but principally the former, it being used only in a few instances in controlling shutters on radiators of passenger cars. Ordinarily, however, it is placed at some point in the water circulation system and serves to check the flow through the radiator until the cooling medium has been raised to the required temperature, when it opens and permits the normal circulation. In this application it is found on the Case, Twin City 12-20, Wisconsin, Lauson and Wichita tractors.

SOUTHERN GARAGE MEN TO BE ORGANIZED.

One day of the Great Southern Automotive Show and Exposition, to be held in Bristol, Va.-Tenn., the week of May 10 under the auspices of the Bristol Chamber of Commerce, will be given over to a meeting for the purpose of organizing the Southern Motor and Garage Men's Association. A special day will be devoted to some 4000 retail merchants who trade with the 60 jobbing houses located in Bristol. Considerable space will be given over to the equipment and accessories exhibits. In a two-day campaign the Chamber of Commerce raised $25,000 with which to construct the show building. The structure will have 30,000 square feet of floor space and will front on State street, the principal thoroughfare, and which divides the two cities. Trucks, tractors, trailers, accessories, aeroplanes, farm machinery, road materials and building specialties will be exhibited. The Chamber of Commerce hopes to make the affair the most representative of its kind ever in the South.

CANADIAN WESTINGHOUSE.

The Canadian Westinghouse, Ltd., reports for the year ended Dec. 31, 1918, net earnings, after depreciation, of $870,718, or 13.98 per cent. on the common, against $846,276, or 13.59 per cent., in 1917. During the year quarterly dividends at the rate of seven per cent., and an extra of two per cent. were paid. Total assets are $9,441,398, an increase of $286,288 during the year.

CUMMINS-MONITOR CO. WILL BE DISSOLVED.

Stockholders of the Cummins-Monitor Co., Columbus, O., will meet to dissolve the company. More than two years ago all the property of the company was bought by the Monitor Motor Car Co. and this action is necessary to close up the old company.

NEW BLOW IS AIMED AT STOCK SHARPERS.

The Federal Trade Commission has inaugurated a crusade against promoters of worthless motor and other securities. It will cooperate with the Treasury Department, the Capital Issues Committee and banking and commercial institutions throughout the country to curb the present widespread misrepresentation in the sale of stocks and securities recognized at this time as a particular menace to holders of Liberty bonds and war savings stamps. One plan proposed is that all dealers in securities be licensed, and that no one be permitted to obtain a license until satisfactory proof is forthcoming of good character and liability.

CHAMPION HELPS ADVERTISE AUTOMOBILE SHOWS.

The Champion Spark Plug Co., Toledo, O., has not only exhibited at all of the big shows this year, but has been a consistent booster for these shows. The company carried out a poster campaign, advertising the exhibitions. This poster was of the 24-sheet variety, especially designed and printed in seven colors. The cooperative form of advertising pleased members of the various automobile associations who were instrumental in promoting the shows and also appealed to the Champion spark plug dealers, giving them an opportunity to link up their local advertising with the poster showing.

LEE TIRE TO MERGE ITS TWO COMPANIES.

The shareholders of the Lee Tire and Rubber Co. voted at the annual meeting to increase the board of directors from nine to 11. John J. Watson, Jr., president, said that the reason was that the management expected to merge the Lee Tire and Rubber Co. of Pennsylvania, the operating company, and the Lee Rubber and Tire Corporation of New York, the holding concern, thereby eliminating the duplication of any accounts and also effecting a saving in taxes.

GASOLINE EXPORTS DOUBLE OVER LAST YEAR.

The United States exported 36,516,063 gallons of gasoline, valued at $8,451,750, in January, against 17,678,881 gallons, worth $4,335,637, in January, 1918. Despite the ending of the war, leading oil companies doing a foreign business predict that the demand will gradually increase rather than diminish, and that within a few months record shipments will be made.

FAFNIR BEARING CO. HAS NIGHT SHIFT.

The Fafnir Bearing Co. is employing a night shift of workers at its factory in New Britain, Conn., to speed up production in some departments to correspond with that in others. Officials of the company state that the extra work is but temporary, and that it does not mean a doubling of the force.

KELSEY WHEEL REPORT.

For the year ended Dec. 31, 1918, the Kelsey Wheel Co. reports sales of $10,336,314, contrasted with $11,321,357 in 1917 and $8,178,921 in 1916. Total income was $1,505,290, against $1,722,864 the preceding year; and the net profits after Federal taxes and interest and depreciation charges was $776,778, compared with $1,040,255 in 1917 and $863,362 the year before that.

KEYSTONE ASKS STOCK EXCHANGE LISTING.

Officials of the Keystone Tire and Rubber Co. have made application to have the stock listed on the New York Stock Exchange. The application was referred to the listing committee.

DAVIS MOTOR CORPORATION.

The Davis Motor Corporation, Manhattan, New York City, has been chartered with $50,000 capitalization by J. M. Shellabarger, L. M. and C. R. Keesling, 601 West 149th street, New York City.

TO DEAL IN AUTO SUPPLIES.

The High Auto Supply Co., Newark, N. J., to deal in auto supplies, has been chartered with $10,000 capitalization by Gustave Popik, Celia Colton and Harry Colton, all of Newark.

DISTRICT MANAGER.

F. R. Starbird is now district manager for the Firestone Tire and Rubber Co., Minneapolis, Minn., and will supervise the branches in Great Falls, Minot, Fargo and Des Moines.

WILL SELL CARS.

The Nissen-James Co. has been incorporated at Doland, S. D., with $25,000 capitalization to sell cars. The parties are W. C. Nissen, E. C. Nissen, Aberdeen, and Arthur James, Doland.

MOTOR EXPRESS.

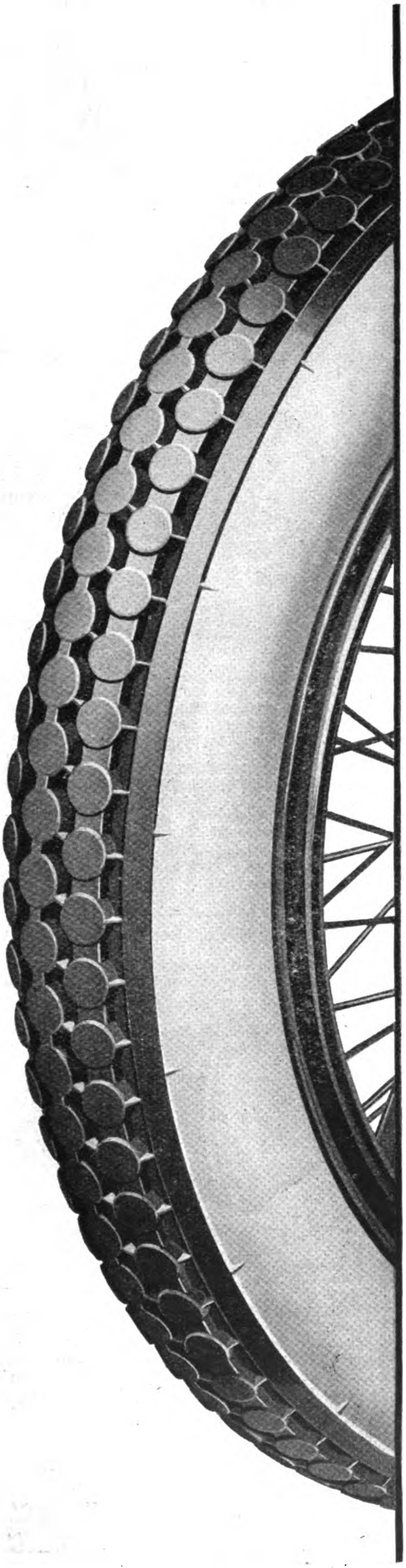
The Buffalo, Rochester and Syracuse Motor Express Co., Inc., Rochester, N. Y., has been incorporated with $25,000 capitalization by H. F. Lucas, E. Ebbinghaus and W. F. Ross, Rochester.

NEW MOTOR FIRM.

The Monrota Motor Corporation, Manhattan, New York City, has been incorporated with $100,000 capitalization by G. O'Brien, L. E. Donahue and E. Drohen, 218 West 104th street.

CHARTER AUTO COMPANY.

The Willoughby Auto Co., Brooklyn, N. Y., has been chartered with $15,000 capitalization by H. J. Pergament, D. I. Samuels and A. Jacobs, 1439 45th street, Brooklyn.

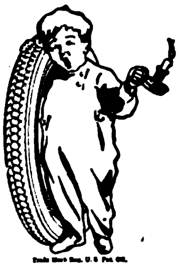


FISK
NON-SKID
TIRES

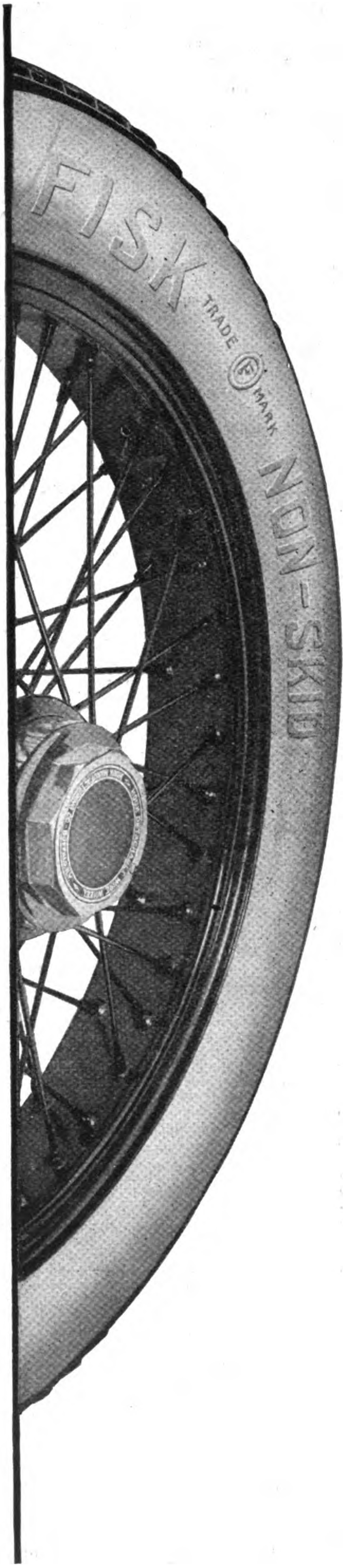
—better quality,
better looking and
a better investment
than ever before

A MORE salable product demanding the buying attention of every far-seeing motorist and every progressive, aggressive dealer.

THE FISK RUBBER CO.
of N. Y.
Chicopee Falls, Mass.



Time to Re-tire?
(Buy Fisk)

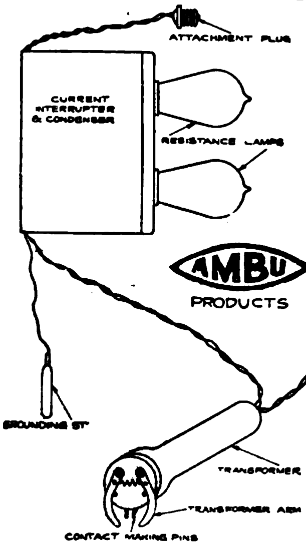


Ambu Armature Tester. The Ambu Armature Tester is a patented device for quickly detecting and accurately locating open circuits, short circuits, grounds and reversed commutator connections in the armatures of motors and generators equipped with commutators.

It combines the good features of the ordinary test methods, i. e., the drop of potential method, the telephone receiver test and the "growler" or transformer test. An alternating or interrupted direct current is used for testing. Not more than one ampere is required for testing any armature, no matter how high or low the resistance of the windings may be.

This current is sent into each consecutive pair of segments, by means of two test points. Two contact making arms touch the commutator at two segments, which are at equal distances from the segments at which the current is sent in. These arms lead to the primary of a specially designed transformer coil, the secondary of which is connected to a specially wound head band telephone receiver. By this method each coil is automatically tested against several adjacent coils, all test indications therefore being comparative. Any slight variation in the resistance of each coil is indicated by a change in the sound heard in the receiver. The transformer coil causes a very marked difference in the sound for a very slight change in resistance.

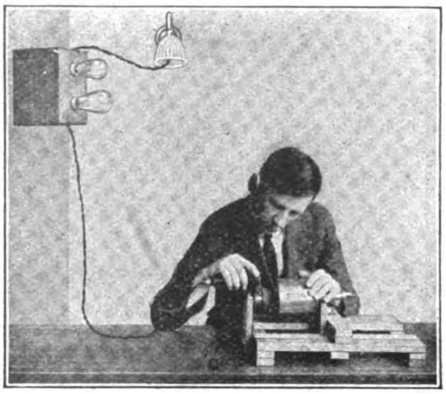
AMBU ARMATURE TESTER



No connections are made to the commutator. All testing is easily performed with one hand. No current flows through the tester until the two contact making pins are touching consecutive segments. The entire tester weighs less than seven pounds and is therefore entirely portable.

An open circuit is indicated by a sudden and very marked increase in the loudness of the tone heard in the receiver. A short circuit is indicated by an equally marked decrease in the tone heard in the receiver. Reversed connections to the commutator are indicated by a loud tone on every second pair of segments as long as the reversed connections continue. In testing for grounds current is sent into the commutator through only one segment at a time and leaves through the core or short. When the current is sent in at the segment which is nearest the ground, the tone heard in the receiver will be very dim. In every kind of trouble, i. e., open circuit, short circuit, ground and reversed connections, the tester picks out the segments or pair of segments nearest the fault.

The Ambu armature tester may be used on any direct or alternating current supply circuit having a voltage of from six to 220 by varying the size of two resistance lamps connected in series with supply circuit, or by short circuiting the lamps, as the case may be. The maximum current taken from the supply circuit in testing any armature does not exceed one ampere. With this current armatures having very low resistances are easily, quickly and thoroughly tested. Armatures of moderate or high resistances require one-half ampere of test current.



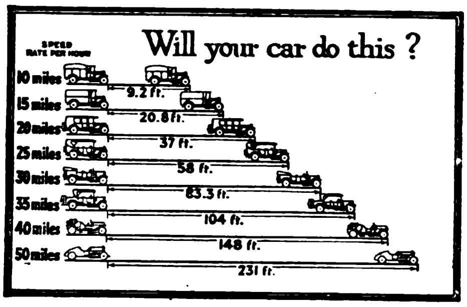
As shown in the illustrations, the construction of the Ambu Armature Tester is exceedingly simple. The two contact making pins by which current is sent into the armature, the two curved arms leading to the transformer coil, and the transformer coil itself are all included in one part, as shown in the first illustration. The current interrupter, condenser and resistance lamps are contained in a small box. The several parts are interconnected by duplex flexible wire.

In making a test, an attachment plug is screwed into any lamp socket. The receiver is then adjusted to the ear. The tester head, containing the contact making pins, curved arms and transformer coil is grasped in either hand, as shown at "C" in the second illustration. The two contacts are then brought down on each consecutive pair of segments around the entire armature, the variation in the tone heard in the receiver indicating the nature and location of the trouble.

Manufactured by the American Bureau of Engineering, 1018-24 South Wabash Ave., Chicago, Ill. Price complete, $30 f. o. b. Chicago.

Thermoid Hydraulic Compressed Brake Lining. How quickly can you stop—not how fast you are going—determines your safety when motoring. The chart illustrated shows how quickly your cars should stop if the brakes are safe and sure. The safety of the car and the security of everyone who rides in it depends upon the texture of the brake lining.

The maker points out that in every square inch of Thermoid brake lining there is 40 per cent. more material than in ordinary woven lining. This additional body gives a closer texture which is made tight and compact by hydraulic compression under 2000 pounds pressure. In addition, Thermoid is "grapnalized," an exclusive process in manufacture which enables it to resist moisture, oil and gasoline.



The engineers of 47 cars and trucks have standardized on Thermoid Hydraulic Compressed Brake Lining.

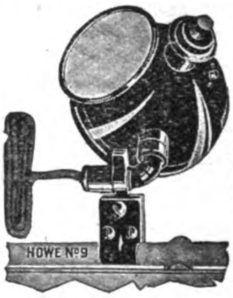
Manufactured by the Thermoid Rubber Co., Trenton, N. J. Prices quoted on request.

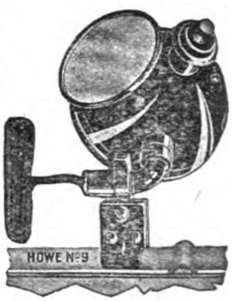
Howe Searchlight. The new models of Howe searchlights are sure to please. They have an enclosed water proof switch and a simple, positive, exterior focusing device, making the Howe one of most complete searchlights on the market.

The Howe directs as easily as pointing a finger, and "stays put" wherever it is turned. This is accomplished by use of a spring controlled bracket, a patented feature. With one hand a person can control the powerful penetrating beam, throw it to the right or left, up, down, behind him, or any other place, instantly.

Both joints in the Howe bracket move at the same time. Two coil springs hold the turning joints in a firm, even grip, and they take up all loose motion and wear. The Howe Searchlight never becomes loose or wobbly, regardless of jars or vibration, no matter how long it is used.

The hollow bracket protects the wire, prevents wear and short circuits. The parabolic, heavy silver plate reflector gives a true spotlight at all distances.





The searchlights are finished in handsomely baked-on black enamel, and are equipped with a 21 candle power six-volt National Mazda nitrogen bulb. They are made entirely from steel stampings, including the bracket and clamps, and are light in weight, but of strong, durable construction. Each Howe Searchlight has a four-inch rear view mirror, making day time driving safer. A choice is given of seven windshield clamps.

Manufactured by the Howe Lamp and Manufacturing Co., 115-123 East Ontario St., Chicago, Ill. Prices, $4.50, $5.50, $6.50, $8.

Rosco Electric Bullet Midget Side Lamps. This bullet side lamp supplied with a frosted glass in the front and a red one in the rear not only helps to beautify a car's appearance, but answers every purpose of ordinary side lamps coupled with a danger signal from the rear. It can be placed on any type body and on fenders front or rear, and is supplied complete with bolts and nuts. It is also popular for motorcycle side cars. The lamp is furnished in black and nickel, all nickel or all brass.

Manufactured by A. W. Rosen & Co., 610-614 Broadway, New York City. Prices, pair, less bulbs: Frosted glass, black and nickel finish or all brass, $4; frosted glass, all nickel, $4.50; cut star glass, black and nickel or all brass finish, $4.50; cut star glass, all nickel, $5. Lamp with Beehive glass; Black and nickel or all brass, $4.25; all nickel, $4.75.

SPECIAL SALE
AUTO TIRES

GUARANTEED 4000 MILES

If a tire fails to give service of 4000 miles we will replace it with another tire for ½ price marked below:

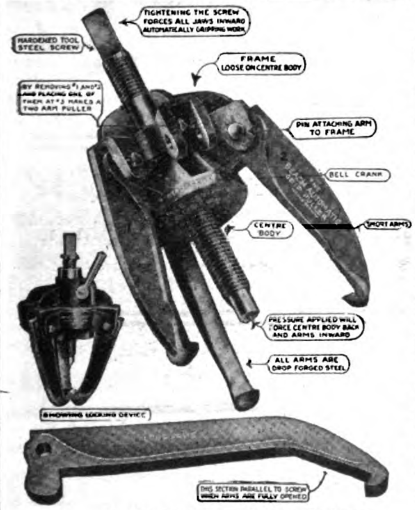
Size	Plain	Non-Skid	Tube
28x3	$6.45	$7.45	$2.30
30x3	7.45	8.35	2.15
30x3½	8.95	9.95	2.40
31x3½	9.45	10.45	2.45
32x3½	9.95	10.90	2.50
34x3½	10.45	11.30	2.80
31x4	13.45	14.60	3.20
32x4	13.95	14.95	3.30
33x4	14.45	15.45	3.35
34x4	$14.95	$15.95	$3.45
35x4	15.45	16.95	3.55
36x4	15.95	17.50	3.60
34x4½	18.45	20.45	4.30
35x4½	18.95	20.95	4.40
36x4½	19.45	21.45	4.45
37x4½	19.95	21.95	4.50
35x5	20.95	23.45	5.15
37x5	21.95	24.75	5.30

Deduct 2 Per Cent. When Check or Cash Accompanies Order.
10% Deposit Required on All C. O. D. Orders.
We Carry a Full Line of New and Reconstructed Tires.

ATLAS TIRE COMPANY, **Tires and Tubes Shipped Express Prepaid**

Telephone Poplar 2970 **822 N. BROAD STREET, PHILADELPHIA, PA.**

GREB AUTOMATIC GRIP PULLER
BEACH PATENT



TIGHTENING THE SCREW FORCES ALL JAWS INWARD AUTOMATICALLY GRIPPING WORK
HARDENED TOOL STEEL SCREW
FRAME LOOSE ON CENTRE BODY
BY REMOVING #1 AND #2 AND PLACING ONE OF THEM AT #3 MAKES A TWO ARM PULLER
PIN ATTACHING ARM TO FRAME
BELL CRANK
CENTRE BODY
SHORT ARMS
PRESSURE APPLIED WILL FORCE CENTRE BODY BACK AND ARMS INWARD
ALL ARMS ARE DROP FORGED STEEL
SHOWING LOCKING DEVICE
THIS SECTION PARALLEL TO SCREW WHEN ARMS ARE FULLY OPENED

A Combination of 2 or 3 Arms.

Gear Pulling Made Easy

The GREB AUTOMATIC GRIP AND GEAR PULLER gets a job done quick and without danger or damage. This means larger profits and quicker work.

Scientifically designed, well made, quick acting, strong, simple and trouble-proof. Adjusts itself instantly to work—locks in any desired position.

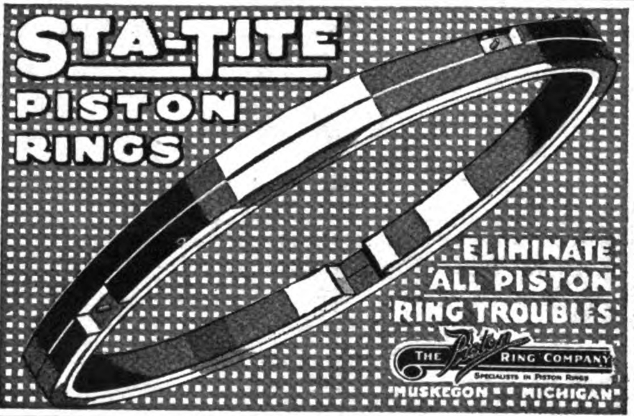
We also make the GREB RIM TOOL and GREB AUTO LOCK.

TWO SETS OF ARMS
Senior Size—Capacity 1" to 10" and 1" to 18"
Junior Size— " 1" to 4" and 1" to 9"

10 DAYS TRIAL

If your jobber does not have them, we will send you one. Try it ten days. If not satisfactory return it to us and we will refund your money.

THE GREB CO.
202 State Street, Boston, Mass.



STA-TITE PISTON RINGS
ELIMINATE ALL PISTON RING TROUBLES
THE Piston RING COMPANY
SPECIALISTS IN PISTON RINGS
MUSKEGON MICHIGAN

THE MOTOR TRUCK

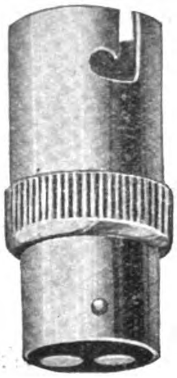
Published Monthly **The year $2; the copy 20c**

A magazine for business men devoted to the promotion of highway haulage efficiency. It is the national authority of vehicular transportation. . . . .

AUTOMOBILE JOURNAL PUB. CO.
Times Building Pawtucket, R. I.

A New Device for Ford Cars

HEADLIGHT EQUALIZER



THIS little device is inserted in the lamp socket of the right hand headlight, is locked into place by the knurled locking nut, and the lamp plug is then inserted into the open end of the Equalizer.

The following results are obtained:
- Much brighter lights.
- Uniform light at all speeds.
- Bright lights at low speed.
- Protection for the bulbs.

If one bulb burns out, the other remains burning.

Ford owners have always been bothered with poor lights at low engine speeds. This device corrects all this. No electrical or mechanical knowledge required for attaching, and the cost is insignificant.

List Price 75 cents each, subject to our regular trade discounts.

Culver-Stearns Manufacturing Company

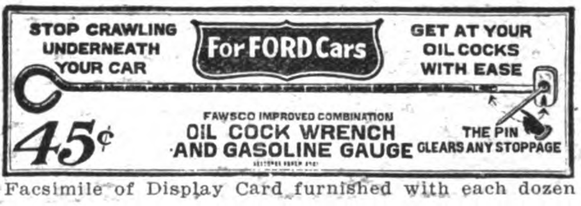
WORCESTER, MASS. DETROIT, MICHIGAN

Distributed by

J. H. Faw, Inc., 37 Warren St., New York, N. Y. Manuel Bergman, 1777 Broadway, New York, N. Y.
M. A. Bryte, Inc., 543 Golden Gate Ave., San Francisco, Cal.; 2208 South Michigan Ave., Chicago, Illinois.

SELL A TOOL

A PATENTED WRENCH WITH CLEANING PIN



STOP CRAWLING UNDERNEATH YOUR CAR

For FORD Cars

GET AT YOUR OIL COCKS WITH EASE

45¢

FAWSCO IMPROVED COMBINATION

OIL COCK WRENCH AND GASOLINE GAUGE

THE PIN CLEARS ANY STOPPAGE

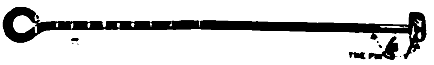
Facsimile of Display Card furnished with each dozen

A notched stick will turn an oil cock, but it may be stopped up instead of empty. The cleaning pin is patented.

FAWSCO IMPROVED COMBINATION

OIL COCK WRENCH AND CLEANER

AND GASOLINE GAUGE



The tool—22" long

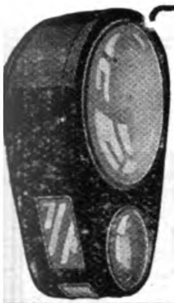
This tool is the one most needed by all owners of Ford Cars as it will not only accurately measure the Gasoline in your tank, but provides the only sure means of learning whether you have oil in the crank case or not.
Made of coppered Bessemer steel rod, nickel plated and black enameled and is guaranteed to give complete satisfaction.
Packed 12 in a heavy corrugated carton, one of them mounted on a display easel, the balance in separate envelopes.

Your Jobber can supply

Manufactured by

J. H. FAW, Inc.

37 WARREN STREET NEW YORK CITY



King Safety Tail Light takes the fear out of night driving—

Equip your car with one NOW

For particulars write

KING-BULL MFG. CO.

123 E. Ontario St.
Chicago.

NEW DEPARTURE BALL BEARINGS

Strength
Stamina
Service

The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

ADAMSON

VULCANIZERS

The Only Complete Line

MODEL "E" 5-Minute Vulcanizer repairs tube punctures—Price $1.00 complete.
MODEL "U" repairs tread cuts and abrasions, mends inner tubes—Price $2.00 complete.
MODEL "T" makes ordinary tube repairs—Price complete $1.50.
MODEL "S" for garage use, makes tube repairs up to 12 inches—Price complete $12.00.

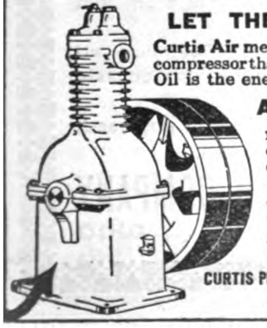
Sold by Jobbers and Dealers Everywhere.

ADAMSON MFG. CO., - - - East Palestine, O.

CURTIS AIR FREE FROM OIL

MOTORISTS *Have* CONFIDENCE IN THIS SIGN

LET THEM FIND IT AT *YOUR* DOOR.



Curtis Air means more mileage, because **Curtis** is the only air compressor that can't flood cylinder with more oil than it can use. Oil is the enemy of rubber. It rots tires, causing blow-outs.

A Curtis Compressor Is Dependable

requires practically no attention, costs very little, quickly pays for itself, always delivers the kind of cool, clean air that makes tires last longer.

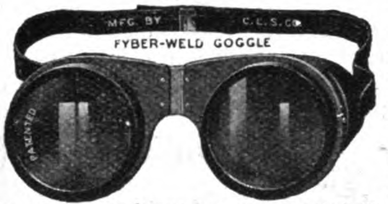
5 sizes and 125 combinations. Write for full particulars and let us tell you why the **Curtis** will prove to be your best investment. Ask your jobber for prices—but be sure and mention **Curtis**—the name is your protection against substitution

CURTIS PNEUMATIC MACH. CO. 1621A Kienlen Ave. St. Louis, Mo.
Branch Office: 531A Hudson Terminal, New York

GOGGLES FOR WELDERS.

Fitted with "Essentialite" Lenses.

THE FIBRE WELD.



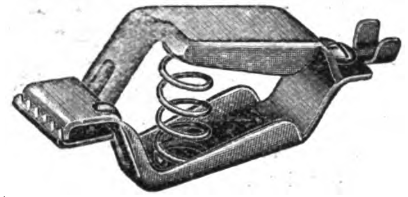
Frame: Vulcanized fibre, non-conductor of heat and electricity, non-inflammable and infusible not affected by moisture, leather center, ventilated side pieces, adjustable elastic head band. We have demonstrated conclusively that with these lenses we vanquish the so-called "fatigue-weariness" and headaches caused by Ultra Violet and Infra Red rays. Circulars and prices at request. Price each, prepaid, $3 pr.

Manufactured by

CHICAGO EYE-SHIELD COMPANY

2300 Warren Ave., Chicago, Ill.

UNIVERSAL BATTERY CLIPS



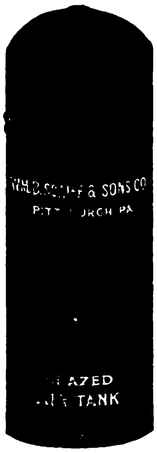
Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals.

No. 21-A—lead plated—1½" spread of jaws.

Sample mailed postpaid for 15c in stamps.

Single Lots, Each 20c. Lots of 10, Each 15c. Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O



SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture

SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.

DETROIT STORAGE BATTERIES

HAYES WIRE WHEELS

NEW ENGLAND SALES & SERVICE

MITCHELL & SMITH INC.

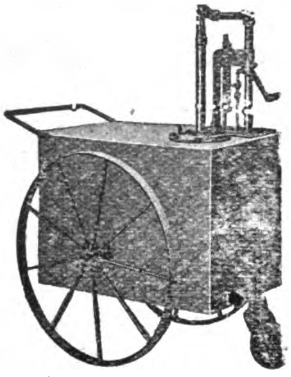
1090-1092 COMMONWEALTH AVE. BOSTON, MASS

WE REPAIR ANY MAKE OF BATTERY OR WIRE WHEEL...

PROFITABLE BUSINESS IN GASOLINE AND OIL

Any line is profitable only when volume of sales is sufficient to show worth-while results. You will command a bigger share of this profitable trade when you have installed

BOWSER Gasoline and Oil Storage



Portable Lubricating Oil Outfit.

Show your community that you are prepared to give them real service in this respect. Put a Bowser Outfit at the curb and you will get the business, and at a good profit. So easy, so accurate, always ready.

Just tell us to prove it to you. You have nothing to lose and all to gain.

S. F. BOWSER & CO., Inc.
Fort Wayne, Indiana, U. S. A.
Canadian Office and Factory, Toronto, Ont.

London
32 Victoria St., S. W. 1

Paris
5 Rue Denis-Poissons

Sydney
6 Castlereagh St.

Havana
Lonja del Comercio 427

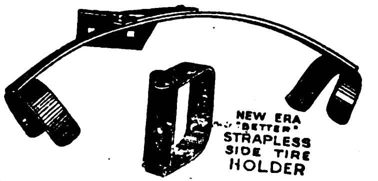
Wanted: Distributors

Manufacturer of well known and nationally advertised automobile shop equipment will consider applications from jobbers and distributing agencies for exclusive territorial rights. This is one of the easiest selling and most profitable selling lines open today, and the opportunity is offered only because of a change in selling policy. In answering please state lines you are now handling on a similar basis, number of salesmen and territory covered. None but high grade connections will be considered, and inquiries will be treated as confidential. Address

John H. Thomas, Sales Manager

416 Anisfield Building, Cleveland, Ohio.

New Era "Better" Strapless Side Tire Holder.



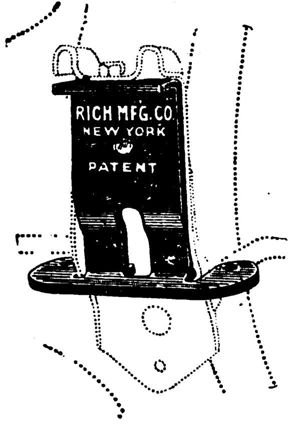
Made of steel, has no cast parts to break and no straps to wear out or be lost. The locking device is a part of the tire holder. Tire easily slips into place and is quickly adjusted. A convenient, light tire carrier that has many exclusive advantages. Self-expanding carrying rim can be furnished extra where demountable rims are not used.

Ask your dealer for the New Era "Better" Strapless side tire holders. Prices $2 to $3.

New Era Spring & Specialty Co.
1177 Hamilton Ave. Grand Rapids, Mich.

"RICO" RE-INFORCEMENT BRACKETS

For Ford Crank Cases



"Rico" brackets prevent the vibration which causes the crank case arms to break. The "Rico" is just as effective when attached, after the crank case arms have been broken. The "Rico" brackets are easily and quickly attached and nothing but a few bolts are necessary. Any one can do the work.

Thousands of these arms break daily. The "Rico" insures against repair bills, delay and vibration that weakens the engine.

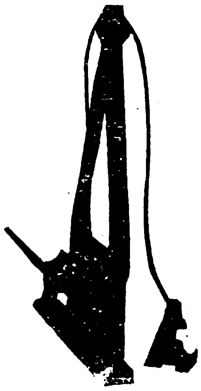
Can better car insurance be bought?

List Price $3 per pair.

Rich Manufacturing Company
1777 Broadway, New York City.

THE PEERLESS HAND HOIST

FOR ANY MAKE OR TYPE OF TRUCK.



A wonder in efficiency and speed. It will fit any chassis and body. Weighs but 200 pounds. Simple, fool proof, wholly dependable and will last for years in the hardest service.

Any one that can drive a truck can hoist the heaviest load to 30 or 50 degrees in the longest body in less than two minutes. The smaller the body and load the quicker the action.

SINGLE CABLE QUADRUPLE.

WORM GEAR DRIVE

But two gears are used, quadruple worm and gear (both machine cut) and housed to protect from dirt and dust.

The single cable makes an even pull. Compact and can be installed without drilling holes in chassis frame. The body hitch is also furnished.

We specialize in building all-steel bodies for any need.

Write for complete information.

THE AUGLAIZE MOTOR CAR COMPANY
NEW BREMEN OHIO

TIP-TOP
OF AKRON
TI-RE-PAIR OUTFIT

The Best Equipment

It pays to buy the best equipment if starting in the tire repair business or adding to present equipment. Tip-Top Ti-Re-Pair Equipment is regarded by tire manufacturers, tire repair schools and repair shops as representing the highest standard of quality in tire repairing equipment that it is possible to produce.

TIRE RETREADING

The high price of tires has created a big interest in tire retreading. Motorists who have worn down their tires until no longer usable want new treads put on.

Every tire repair shop should have one of these recently developed Type E Cavity Retreading Outfits, which operates on the same principle as the regular cavity vulcanizer used for repairing casing punctures and blowouts.

Cost of outfit with self-contained steam boiler is much less than that of a vulcanizing kettle and separate steam boiler. (The use of large and expensive retreading kettle outfits is no longer necessary since the development of this type of retreading equipment—and the elaborate, difficult and time-consuming system of wrapping tire is not required with the cavity method). Outfit is very compact and takes up little room in the shop.

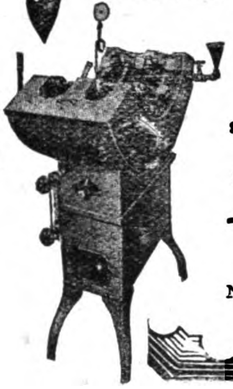
TIRE REPAIRING

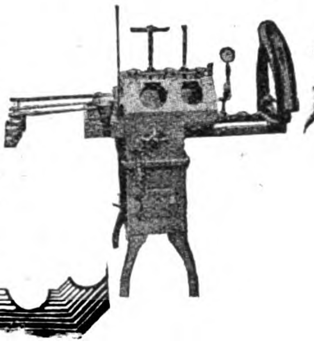
Motorists who have never bothered with tire repairing are now having casing and inner tube punctures and blow-outs repaired by the vulcanizing process.

Now is the timely time to start in the tire repair business.

We make a complete line of Tire Repairing Equipment—cavity vulcanizers of both the self-contained boiler and separate boiler types—Tube plates—Steam Boilers—Bead Molds—Tire Repair Tools. No matter what you have need of we are in position to supply it to best advantage.

Write us today for literature describing our full line of tire repair equipment, and data regarding vulcanizing and the possibilities for profit in the tire repair business.





THE AKRON RUBBER MOLD & MACHINE CO.

945 SWEITZER AVE., AKRON, OHIO.
Pacific Coast Distributors,
GEO. W. ENO RUBBER CO.,
1059-63 Post St., San Francisco.
1026 So. Los Angeles St., Los Angeles.

Return This Coupon for Free Booklet. A.G.&J.

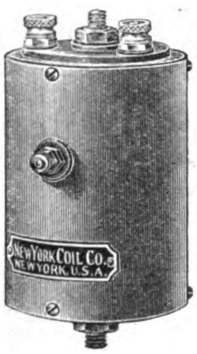
Name........................ Address......................

Service Stations and Garagemen

Big worth-while profits with astonishing increase of trade

immediately follows your taking on

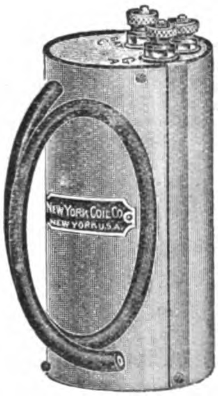
NEW YORK REPLACEMENT IGNITION COILS


New York Coil Co.
New York U.S.A.

95% of all cars are coil equipped—every one a prospect. No large investment necessary. A few dollars will start you because a small quantity of different model coils fit ALL CARS.

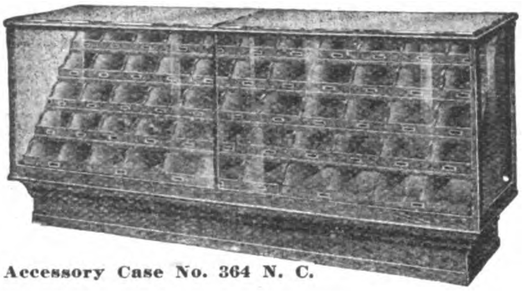
Fifteen years coil building experience enables us to produce a coil that gives a crashing big hot spark—even when battery is low—that insures easy starting and perfect running on present day low grade gas.

They are guaranteed for the life of the car. Don't let your competitor get the nicest piece of business ever offered, but write today for trade prices and circular giving list of proper coil for each model car.


New York Coil Co.
New York U.S.A.

NEW YORK COIL COMPANY

338 PEARL STREET NEW YORK, N. Y.



Accessory Case No. 364 N. C.

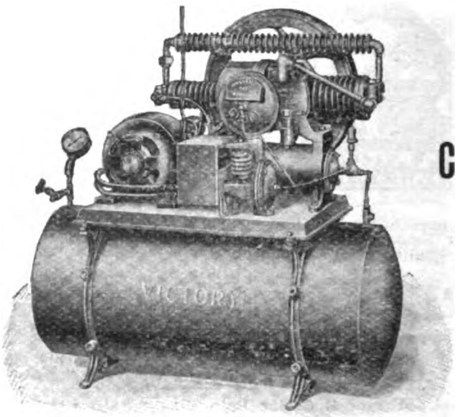
THIS DISPLAY CASE PAYS BIG RETURNS TO ACCESSORY DEALERS

With this special accessory display case it is easy to keep your stock bright, fresh and clean. Saves time for your salesmen and makes it easy for your customers to pick out what they want. The extra sales alone that this case creates soon pays back all that it costs.

It has from 35 to 70 drawers (depending upon length of case), each one with a bronze card holder and pull, heavy beveled plate glass top, and has beautiful golden oak finish. This is now used by many successful dealers who say it is ideal for the purpose. The cost is moderate and we are making immediate shipments. We suggest that you write at once for full description and price.

DETROIT SHOW CASE CO.,
479 Fort St. W.,
DETROIT - MICHIGAN

VICTORY



Complete Automatic Compressor Unit

ACE OF ACES

GLOBE TYPE B—Original Two-Stage Garage Compressor. Saves power, time and money.

WONDERFUL new system of AUTOMATIC LUBRICATION insures Oil-Free Air, provides abundant and continuous lubrication and wastes NOT AN OUNCE of lubricant.

Automatic Pressure Unloader protects belts, fuses and motors.

15 Sizes and Styles of LAST WORD Equipments from which to select.

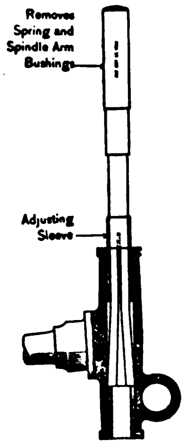
Desk C.

Globe Manufacturing Co., Battle Creek, Mich., U.S.A.

"Mosco" Jiffy Bushing Remover

A PRACTICAL TOOL

For FORD, DODGE, DORT, OVERLAND, SAXON, MAXWELL, CHEVROLET and all Cars, Trucks and Tractors using a ½-inch spindle bolt.



Fitted with sleeve, which keeps split end of tool compressed until properly located.

WHAT IT DOES.

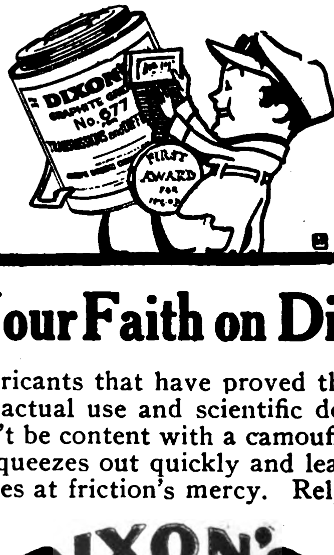
Removes bushings from steering knuckle, spindle arm and springs, and does it so quickly that it pays for itself the first time used.

Made of steel, case hardened.

Price $1.50

Please Order Through Your Jobber.

MOTOR SPECIALTIES COMPANY
Manufacturers
WALTHAM, MASSACHUSETTS



Pin Your Faith on Dixon's

The lubricants that have proved their superiority in actual use and scientific demonstration. Don't be content with a camouflage coating that squeezes out quickly and leaves bearing surfaces at friction's mercy. Rely on

DIXON'S GRAPHITE Automobile LUBRICANTS

they stay put—save wear, time and money.

Write for Dixon's Dealer's Deal No. 49-G.

Made in Jersey City, N. J., by the
JOSEPH DIXON CRUCIBLE CO.
ESTABLISHED 1827

Avoid Sure Trouble!

If you equip your customer's car with an unknown or unreliable ammeter you are practically sure of complaint, with probable loss of trade. Don't run this risk! You know that the

AMPERES
30 20 10 0 10 20 30

Weston

Model 354 AMMETER

On the Dashboard or Cowl

is the only absolutely reliable safeguard for the driver, telling him instantly and definitely whether he is maintaining the proper condition of his battery.

Weston instruments not only insure the good will of your business, but make you a handsome profit as well. **Write us.**

We are returning to normal conditions as rapidly as possible, but we necessarily must complete government work in hand before full normal service can be rendered.

WESTON ELECTRICAL INSTRUMENT CO., 103 Weston Ave., Newark, N. J.

FREE AIR COSTS MONEY

when the customers for whose convenience you provide an air station forget to turn off the flow after they have filled their tires.

Guard against this waste by attaching a

Schrader Universal Inflating Valve

to your air hose.

Thanks to this appliance your bottled air locks itself into the tank the minute it is taken off the tire-valve. You turn on the air by pressing the nozzle of the inflating valve against the tire-valve and you turn it off by removing the device from the tire-valve.

Made to fit any diameter of hose from 1/4 in. to 5/8 in.

PRICE $1.50 in U. S. A.

Manufactured by **A. SCHRADER'S SON, Inc.**
800 Atlantic Avenue, Brooklyn, N. Y.

Schrader products were awarded a Grand Prize and two Gold Medals at the Panama Pacific International Exposition. "There's a Reason."

AMBU TRADE MARK

Cadmium Tester

Enables you to test either set of battery plates, accurately and quickly. Consists of set of Cadmium leads and specially calibrated positive and negative voltmeter. Complete, $25. Voltmeter alone, $22.50. Leads alone, $3.25.

Automobile Storage Battery

Its Care and Repair

This leather bound book tells in non-technical words all about this vital part of every car—and how to correct all troubles. Every owner should have one—5 days' examination, $5.00, postpaid.

AMERICAN BUREAU OF ENGINEERING
1032 WABASH AVENUE, CHICAGO

SAVIDGE UNIVERSAL VALVE LATHE

$12.00

95% of the *usual* valve grinding is absolutely unnecessary. The *Savidge way* means a quick—accurate—perfect fit with each valve—*every time*—at a fraction of the time and labor.

Capacity—45° or 30° heads up to 2½ inch—stems up to 7/16 inch.

Get Your Jobs Out Quick—Increase Your Profit.
Take Care of More Customers.
Satisfy All—Please Your Trade with Quality Work.

Workmanship and material fully guaranteed—money back if not pleased after 10 days. Folder describes this and Junior Model.

A. C. SAVIDGE, No. 3 Williams Bldg., Indianapolis, Ind.

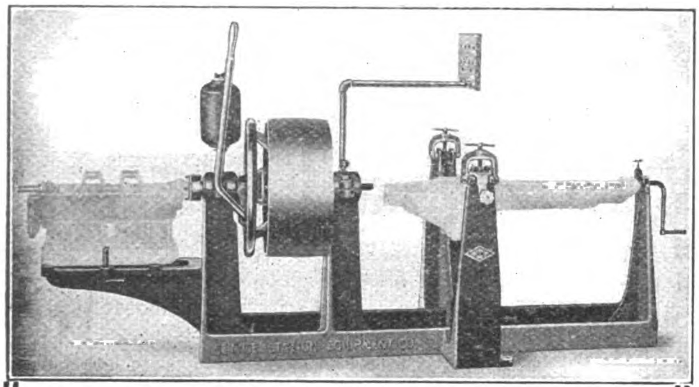
THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted to owners of pleasure cars and dealers who serve them.

TRIPLEXD
TRIPLEXD
GASOLINE HOSE

METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

227 Tillary Street. **Write for Our New Circular.**



The American "Junior" Combination Bearing Burning-in and Motor Test and Running-in Stand

WITHIN THE REACH OF EVERY FORD DEALER AND REPAIR MAN

The **American Junior** is constructed so that the bearings of the Ford Block are exposed to the view of the operator while being burnt-in. The burning-in Base is constructed with openings large enough so that the Pistons and Connecting Rods can be installed or fitted without removing the Block from the machine. The Block is held in position with quick acting clamps set in guides.

The **American Junior** is constructed along the solid unit principle, no bolts or rivets are used in the frame. This eliminates vibration and also the danger of the frame shaking loose from constant use.

The Motor Test part of the machine can be operated independently or at the same time that the bearings are burned in. This machine has the quick adjusting alignment device on right hand motor support for aligning the Universal Joint quickly and accurate. The clutch is also equipped with a tryout wheel so that the stiffness of the motor and bearings can be determined without removing either unit from the machine.

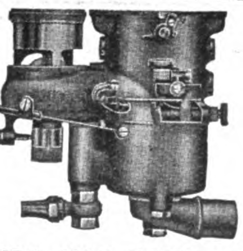
The **American Junior** comes completely equipped with gasoline tank inlet and outlet water connections, and coil support as shown in illustration.

Price $197.50

We manufacture a full line of equipment for Ford and Fordson Service Stations. Write for Catalogue.

All equipment manufactured by this company is approved by the equipment department of the Ford Motor Company before it is placed on the market.

SERVICE STATION EQUIPMENT COMPANY, Inc.
MANUFACTURERS
1201-1211 Cortland Street Chicago, Ill.

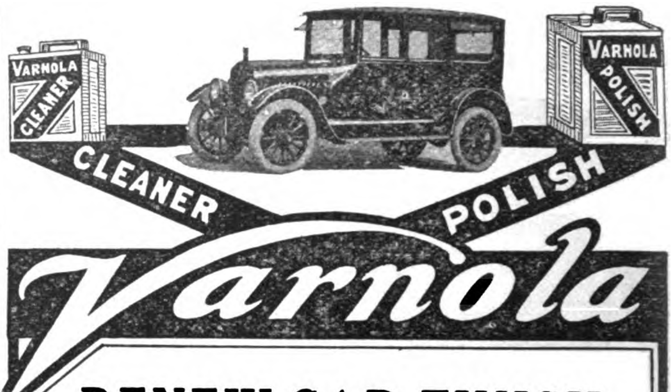


YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

More Mileage—More Power—More Speed

Get him to try it for 15 days. Satisfaction guaranteed.

WEBBER MANUFACTURING COMPANY
Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway



RENEW CAR FINISH PERFECTLY

THEY restore varnish and enamel, on wood and metal, to the original appearance. The Cleaner removes grease, dirt or corrosion from the surfaces and the Polish gives a high lustre that will endure from 30 to 60 days.

A pint can of the Cleaner and a quart can of the Polish will suffice for any size or type of car for six months. The price for the two, sold only in combination, is $1.50

JOBBERS AND DEALERS

You know the reasons why other automobile cleaners and polishes do not satisfy. Varnola products are sold with a guarantee of satisfaction. The demand is constantly growing. The sales probabilities are extremely large. Our trade discounts are very liberal. Write for them today.

American Manfg. & Supply Company
BOSTON 9 WILTON STREET (Allston District) MASS

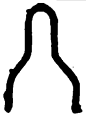
A·B·C

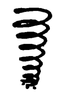
STARTING & LIGHTING SYSTEM FOR FORD CARS
TWO UNIT

$115 Installed **F. O. B. Detroit**

Splendid Opportunity for Dealers
Prompt Deliveries—NOW

A. B. C. STARTER COMPANY
DETROIT, MICH.

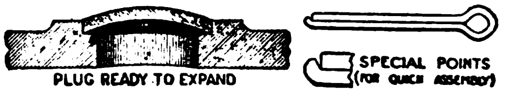




SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

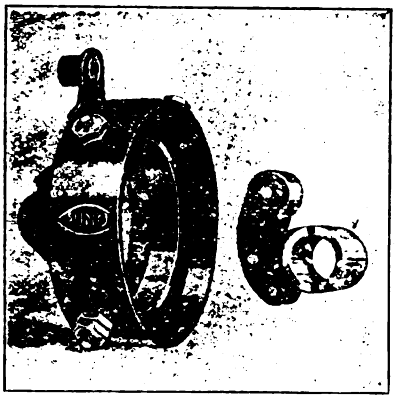
16 lbs. Assorted Springs	**$2.00**
25 lbs. Assorted Cotters	**5.00**

Subject to Market Changes.
Send for Catalogue.



Welch Patent Expansion Plug.
For Closing Core Holes.
M. K. HUBBARD SPRING CO., Pontiac, Mich.

This Is the Timer You Want



CUNO Timers Give Satisfaction

A high class, well built instrument. Can be attached to any Model T Ford Car without change. Built to resist wear. Indestructible light steel case—handsomely black enameled.

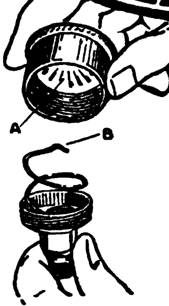
Improved roller arm assembly. Roller and pin of special steel, hardened. Extra quality fibre ring. Constant lubrication.

Dealers, write for proposition.

Gives Real Service TRADE UNO MARK Price $1.50

The Cuno Engineering Corp.
Meriden, Conn., U. S. A

"M. & E." PATENTED GREASE CUPS



Affords Truck Insurance of the Highest Order.

It has a ratchet locked top. The top cannot work loose or rattle off. It will continue to lubricate as long as there is grease in it.

Where service and upkeep costs are a factor M. & E. Grease Cups are always used. That is why the Packard and other leading makes are so equipped. At "B" is shown the pawl, "A" the notches in the top of cup. The pawl slips from notch to notch and locks the top, which cannot rattle off from vibration.

The New "M. & E." Dry Disc Clutches
(Pat. and Pat. Pend.)

Represents the highest degree yet attained in clutch construction. A marvel in design, a wonder in operation. Built to S. A. E. dimensions. Can be had either fly wheel or self contained—single or multiple disc. Need no adjustment—are sand, dust and fool-proof.

Made by the producers of the

Evans Model "Hele-Shaw" Clutches *Evans Alignment Joints* *M. & E. Universal Joints*

Where Quality Counts "M. & E." Products Win.

Write Department 2 for facts and prices.

MERCHANT & EVANS Co
NEW YORK PHILADELPHIA WHEELING
BALTIMORE CHICAGO
ATLANTA ST. LOUIS
CLEVELAND KANSAS CITY

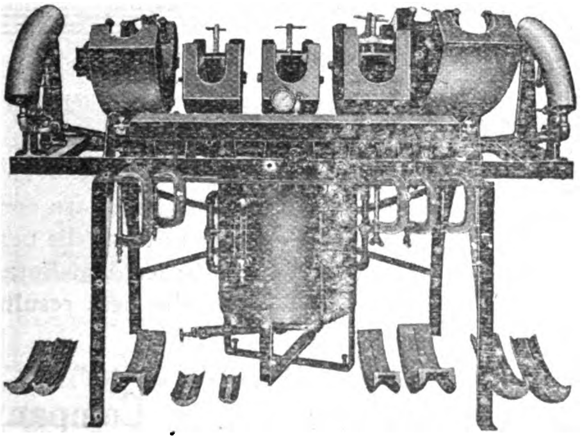
Money-Making Business For Returning Soldiers and Sailors

And Others

You can get into the most profitable of all businesses, build up big trade, make big money every day and be independent for life. OPEN A TIRE REPAIRING SHOP.

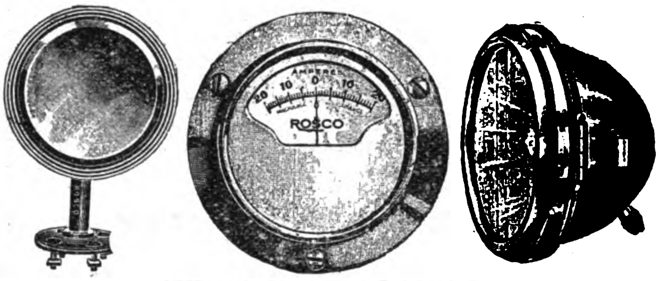
VANDERPOOL TIRE VULCANIZER

operates upon correct principle; repair tires exactly as originally made. Endorsed by biggest factories. Used by veteran tire repairers. Scores of testimonials from men now making big success with Vanderpool Vulcanizers. 5 Cavity Model has capacity of $100 WORTH OF WORK A DAY. Write for FREE TIRE REPAIRING MANUAL.



In answering address Dept. R 7.

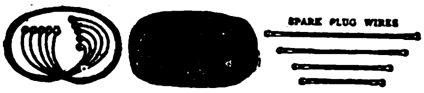
The Wm. Vanderpool Co., Springfield, O.



Our Line is a Money-Maker for you—Stock Now—Immediate shipments.

Write for **CATALOG** illustrating our Complete Line with Prices

It Will Pay You

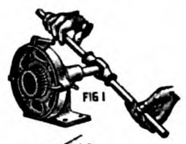


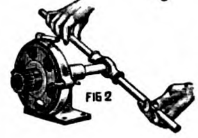
A. W. ROSEN & CO.
MANUFACTURERS
610-614 Broadway New York

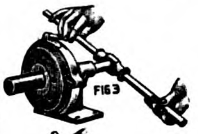
FORD REPAIR MEN Cut Your Labor Costs to Just One-Third What They Now Cost You by Ordinary Methods and Do the Work Better Than the Best Job You Ever Sent Out.

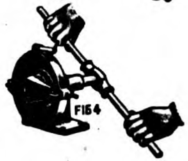
This great saving of time means a big additional profit, but is now a loss. There is BIG MONEY in Ford repairing if you have efficient tools that save time and eliminate guesswork and experts. The two outfits listed here will save their cost on a very few jobs and enable you to render the quickest possible service to your trade.

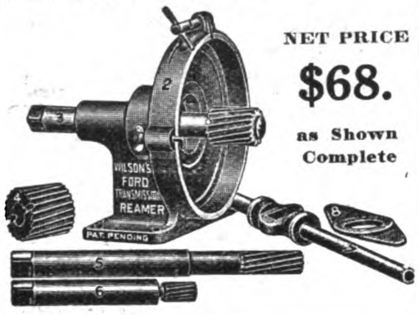
TRANSMISSION REAMING MACHINE reams every bushing in a Ford Transmission to a perfect fit and alignment, so the gears mesh perfectly on their pitch diameter and run without noise or excessive wear. Impossible with any other tool equipment ever offered. **30 Minutes to Completely Overhaul and Re-Bush a Transmission,** making it as good as new. Can you beat it.











NET PRICE

$68.

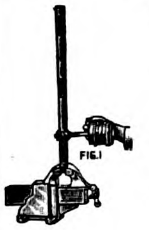
as Shown Complete

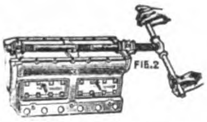
Main Bearing and Connecting Rod Aligning Reamer

30 Minutes to Fit Perfectly All Main Bearings and Connecting Rods.

"A DAY'S JOB DONE IN HALF AN HOUR."

Pilots guide the reamer. No chance to make mistake. Far superior to any other known method. Motors put up this way can be started by hand. I have only a limited supply of this material on hand. Send your order promptly to avoid disappointment. One per cent discount if you mention this magazine. Send for catalogue of other special tools, reamers, etc.





Price $28.

I Make the BEST HONEYCOMB RADIATOR at any price.

K. R. WILSON

10-16 LOCK STREET BUFFALO, N. Y.

DEALERS—GARAGEMEN

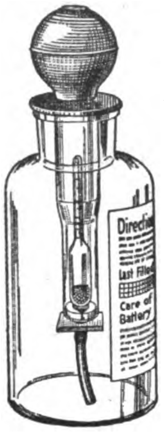
When placing your next order for hydrometers insist that your jobber furnishes

WORKRITE Hydrometers

If he does not handle the "WorkRite" do not let him talk you into any "just-as-good" article. Most of the leading battery manufacturers use and sell the WorkRite exclusively. If you once handle the high grade WorkRite Hydrometer with its many new features you will never again be satisfied with the "just-as-good" kind. Write us for the name of nearest jobber who will furnish you the genuine "WorkRite."

WorkRite Hydrometer Outfit, $1.50.
WorkRite Hydrometer, only $1.00.

THE WORKRITE MFG. CO.
5614 EUCLID, CLEVELAND, O.



Perfection Springs

2000 Ford Fronts
200 Maxfer Rear
200 Smith Form A Rear
ALL OTHER MAKES

Immediate Deliveries

Dealers write for prices

Geo. Lawrence, Inc.
Cambria Street, Boston

PATENT APPLIED FOR
13 INCHES LONG WEIGHT 6 LBS.

BILT-RITE

Combination Drill and Valve Grinder

Garagemen and Repairmen see its value at once. Efficiently combines two tools indispensable for automobile work.
A light, easily portable electrically operated tool. Does a better job with greater convenience.
Change in operation requires but a fraction of a minute.
Strong and durable. Splendidly built to close limits.
For further information ask your Jobber or write us.

Petterson Engineering & Mfg. Company
Exchange Bldg.
WORCESTER MASSACHUSETTS

We Pay Spot Cash for Worn-Out Magneto Points

Old magneto points, and, in fact, all broken or useless platinum, gold or silver accessories, painters' gold-leaf cotton, etc., are worth money to you. Mail them to us and we will send you immediately their highest value in spot cash, and will hold the goods subject to your approval of our price.

Send us also your dilapidated jewelry, silver-plate, diamonds, watches, anything containing gold, silver or platinum or jewels. We pay prices that make it worth while. Mail them today.

Dun and Bradstreet References

OHIO SMELTING & REFINING CO.
914 Park Building, Cleveland, Ohio

Anti-Borax WELDING FLUX

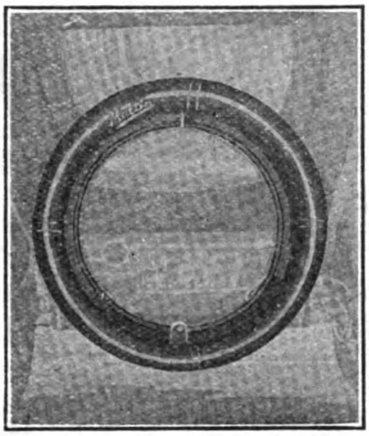
OUR Brazing and Welding Fluxes for Blacksmith work and Acetylene or Electric Welding of all kinds of metal are considered by all users to be the best on the market. Order Anti-Borax Fluxes and get the best results.

MANUFACTURED BY

Anti-Borax Compound Company
FT. WAYNE, INDIANA.

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.

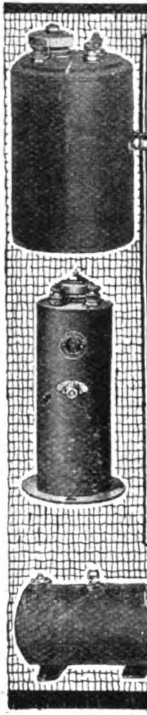
Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts. The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

JEFFERSON AUTOMOBILE IGNITION COILS



STEADY PROFITS

in coil replacements—from a *small* investment.

ORDER JEFFERSON COILS

A small stock enables you to fit all makes of cars. Flexible caps, terminals, and brackets adapt these coils to all ignition systems.

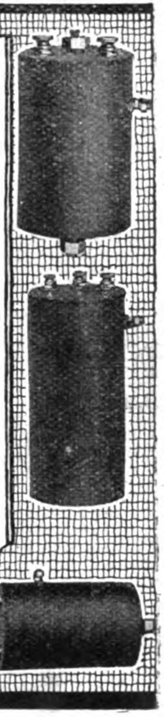
You can count on the long life, dependability, and uniform high standard of Jefferson ignition coils —*we guarantee them fully.*

Prepare now for your *full* share of this steady, profitable business. *Today*—order Jeffersons—the only complete line of interchangeable ignition coils.

SEND FOR COIL LIST

showing list of all cars that are Coil-Equipped and the types of Jefferson Coils and Brackets to be used as Replacements.

JEFFERSON ELECTRIC MFG. CO.
429 So. Green St.
CHICAGO, ILL.



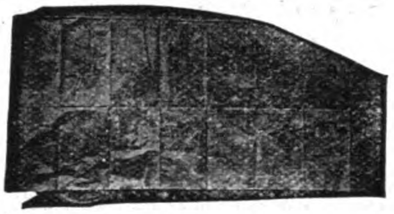
TRACTOR WORLD

Monthly **20c the Copy** **$2 the Year**

A Tractor Journal devoted to the tractor industry and trade

Published by

The Automobile Journal Publishing Company
PAWTUCKET, RHODE ISLAND



KENNEDY AUTO STORAGE COVERS

Furnish efficient and economical protection for cars in dead storage. They are made of heavy, durable paper in standard sizes to fit any cars.

MADE ONLY BY

THE KENNEDY CAR LINER & BAG CO.
SHELBYVILLE, IND.

THE BURKE

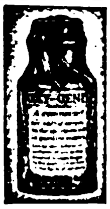
Ox-Iliator

Ox-iliator

supplies the gasoline motor with additional oxygen (moisture) needed for complete combustion; consumes carbon; saves fuel: increases motor power. Inexpensive, easily installed.

Oxy-Genii capsules

double efficiency of any air moistener: surcharge water through which air passes with free oxygen. 30 capsules—3 months supply—75 cents. Write for booklets.



Oxy-Genii

AUTOMOBILE DEVICES COMPANY
PHILADELPHIA, U. S. A.

BUNTING BEARING BRONZE
B.B.B.CO.No1

Same quality as our finished bronze bushings and bearings used by manufacturers the country over.

Your repair stock is not complete without it.

All leading jobbers
Ask for catalog N

The Bunting Brass & Bronze Co.

727 SPENCER STREET
TOLEDO, OHIO.

CORED BARS

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3⅛
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8⅛
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2¼	12	15⅛
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20

TRADE OUTLET

"LET'S GO"

The war is over and we are ready to tackle the old job right where we left off before "Old Kaiser Bill' started his party. We are in a position to give you the same good service and remarkably low prices of the good old days.

We have it if it is for an automobile. Get on our mailing list.

ELECTRICAL SPECIALS

6-V. Ward-Leonard Starting Motor, complete with Bendix Drive...	$15.00
6-V. Ward-Leonard Lighting Generator........	15.00
6-V. Trojan Motor Horn	5.00
6-V. Model G.G. Autolite Generators.......	12.50
Battery Boxes, 11¾" long by ¼" wide; 12" high	1.25
Starter Switches—many types—prices up from	1.25
Bosch DU-4 Magnetos—variable spark.........	30.00
Simms SU-4 Magnetos..	25.00
Lighting Switch with Dimmer	1.00
6-V. Connecticut Lighting and Ignition Switch	7.50
6-V. model CC Atwater Kent Coils...........	6.00

STARTING AND LIGHTING BATTERIES.

BRAND NEW — guaranteed — with universal terminals will fit most every car.

6-volt, 110 ampere....	$25.00
12-volt, 60 ampere.....	36.00

Send for Our Circular (Electrical) H-400.

SPECIALS FOR FORD CARS.

Standard Roller Bearings for front wheels, set..	$7.50
2-V. Lighting System—Complete	17.50
Crown Fenders—Set of 4	18.00
Special Ratio Gears—4 to 1 Ratio—set.........	12.50
Special Ratio Gears—2¾ and 8 to 1—set......	15.00
One-Man Mohair Tops—complete, touring.....	35.00
One-Man Mohair Tops, Roadster, complete....	25.00
Top Roofing outfits—Touring	12.00
Top Roofing outfits—Roadster	9.00
Honeycomb Radiators—all models up to 1916	25.00
Honeycomb Radiators for 1917 and '18 models..	26.50
Long, sloping type Speedster Fenders, per set of four..............	10.00
18" Steering Wheels with corrugated rim........	$3.50
Sprague worm type Steering Gears............	3.50
$1 Jointless Piston Rings, each..........	.75
Sando — special Ford Spark Plugs, each....	.35
Master Vibrators........	2.50
Stewart Speedometers—complete	7.50

RIMS AND WHEELS.

All makes for all cars—Let us quote you prices.

RADIATORS FOR ALL CARS.

Brand new Honeycomb Type for all cars. Write for price list.

SPRINGS FOR ALL CARS.

High grade standard Springs for all cars. Better prices; better service.

1½-TON TRUCK UNIT FOR FORDS.

All that is required is a Ford Chassis (any model) a Puritan truck unit and "presto," you have a 1½-ton truck. No special tools required, only a wrench. Attachment can be made in two hours. Price, $245. Write for full description.

STANDARD BODIES.

1918 Abbott Cloverleaf, with Top and Shield—while they last......	$125.00
1915 Studebaker, 5 passenger bodies......	50.00

SPECIALS.

18" Steering Wheels with corrugated Rim.......	$2.75
20-Gal. Pressure Feed Gas Tanks...........	10.00
Model "B" Presto tanks —fully charged.......	8.50
Model "E" Presto tanks —fully charged.......	7.50
Windshields—all sizes—priced up from.......	10.00
Cowl Gas Tanks for 1915 Maxwell cars.........	6.50

AXLE SHAFTS.

In stock for all cars. Get our prices first.

NEW PARTS FOR ALL CARS. Gears, Axle Shafts, Bearings, Transmissions, Axle and Motor Parts, Piston Rings, Pistons, Universal Joints, Hubs and Hub Parts, Springs, etc.

Write us for quotations.

MOTOR TIRE PUMPS.

$15 Stewart Pumps for Hudson Super Six....	$10.50
Kellog Pumps for many cars	9.50

MOTORS.

Four and 6-cyl. rebuilt motors—They are not new, but we have rebuilt them ourselves and can guarantee them to be in first class condition. Many sizes and makes in stock, from 20 to 90 H. P.

If you are in need of a motor, write for our motor specification sheets.

STEERING GEARS—Brand New.

Many makes and sizes in stock. Can fit most any car. Prices from $8.00 up.

TRANSMISSIONS.

Up to the minute transmissions of all sizes in stock. Complete with levers. We have both the Bell Housing type, that is used with all the late makes of unit power plants, and the older type that set in center of car. Sometimes it is cheaper to buy new than to repair the old.

BEARINGS.

All makes and sizes in stock. Bearings suitable for all cars. Immediate deliveries.

ELECTRICAL REPAIRS.

Are you having trouble with your Starter, Lighting Generator, Magneto Coil, Switch, etc.?

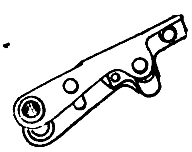
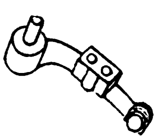
LET THE PURITAN OVERHAUL IT.

Better service. Better prices.

ELECTRIC LIGHT YOUR FORD.

Complete lighting system. Includes generator complete, storage battery, electric side and tail lamps, switches, wiring, etc. Everything complete installation. Regular price $29. Our price, $17.50.

PURITAN MACHINE CO., 604 PURITAN BLDG. **Detroit, Mich.**
EASTERN BRANCH, 245 WEST 55TH STREET, NEW YORK, N. Y.

Superior Parts and Brushes

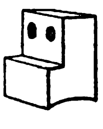
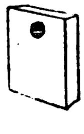
FOR ALL

Ignition and Starting Lighting Systems

Used for Years by the Best Repair Shops Everywhere

"They Last Longer but Cost Less"

Write for Catalogue

Specialty Manufacturing Co.

637 Massachusetts Ave., Arlington, Mass.

Lozier Owners

Why Buy
Counterfeit Repair Parts
We Have All

Original Parts

Made from Original Patterns.
Order from Headquarters.

LOZIER MOTOR CO.

Fort and 6th Sts., Detroit, Mich.
Service Stations.
E. A. Cornely, Inc., 1445 Bush St., San Francisco, Cal.
Lozier Motor Co. of New York, Inc., 47th St. and 11th Ave., New York City.

AUTO PARTS.

50% to 90% Off List.

24 Hour Service. Unlimited Stock.
Pope-Hartford, Columbia, Reo, Overland and 200 other makes.

Motors,	$20.00 up	E. Presto Tanks,	$4.00
Magnetos,	$3.50 up	B. Presto Tanks,	$4.75
Cylinders,	$3.00 up	Bearings,	50c up
Springs,	$1.00 up	Rims,	$1.00 up

1000 Other PARTS Bargains.

If you want any part not listed here,
Write Us—We Have It.

Conn. Auto Parts Co. Inc.

1070 Main St., Hartford, Conn.

Wilkins & Hovey Co.

35 Albany St.
Cambridge, Mass.

WELDING

GOOD WORK
PROMPT SERVICE

Send us your broken cylinders, frames and machine parts.

Scored cylinders filled and fitted.

Telephone Camb. 4830.

Send it to Detroit

MAGNETOS.

Bosch DU4 Variable spark.......	$30.00
Bosch DU-4 set spark............	25.00
Bosch D4 and Dr4...............	25.00
Bosch D6 and Dr6...............	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D.........................	10.00
National 4 cyl. low tension.......	8.00
Briggs 4 cyl. low tension........	8.00
Remy 4 cyl., type R L............	15.00
Simms SU4 high tension..........	22.00

GENERATORS.

Deaco 6 volt......................	$12.00
Auto Lite 6 volt..................	15.00

COILS.

Splitdorf T S type...............	$10.00
Splitdorf box type...............	6.00
Bosch type A.....................	10.00
Remy box coils...................	6.00
Remy type LC and LE..........	8.00
Briggs box coils.................	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hours service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange

192 Grand River Ave. Detroit, Mich.

EXPERT REPAIRING; every known Magneto and Ignition System, Starters, Motors, Generators. **Magneto Exchange and Repair Shop, 269 Halsey Street, Newark, N. J.**

PORTABLE GARAGES.
Send for Catalogue.
THE J. A. CATHERMAN MANUFACTURING CONCERN.
Beaver Springs, Pa.

TRADE OUTLET

Write

AUTO PARTS CO.

For

REPAIR PARTS

Our new bulletin of used parts and prices now ready.

With this bulletin in your shop you can supply repair parts for all makes and models of cars listed and increase your repair business.

It Is Free. Write for It Today.

AUTO PARTS CO.
4103 Olive Street, St. Louis, Mo.

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. **40 Mathewson St., Providence, R. I.**
Phone Union 4179-R.

AUTO SAVE 50-90% FOR 400 CARS PARTS

POPE, PACKARDS, PIERCE, BUICK, STEVENS-DURYEA, KNOX, OVERLAND, ETC.

Motors.....	$25.00 up	Presto Tanks .	$ 4.50 up
Magnetos . . .	4.00 "	New Spotlights	2.00 "
Carburetors . .	3.00 "	Generators. . .	10.00 "
Rear Axles . .	15.00 "	Gears	1.00 "
Front Axles . .	5.00 "	Bearings	1.00 "
Cylinders . . .	5.00 "	Radiators . . .	10.00 "

$12 Diamond Bumpers............$5.50

Jobbers in Bankrupt Auto Supplies.

BRIGHTMAN AUTO EXCHANGE
84 Wooster St., Hartford, Conn.

Atwater-Kent Sales Co., of New England

883 BOYLSTON ST., BOSTON, MASS.

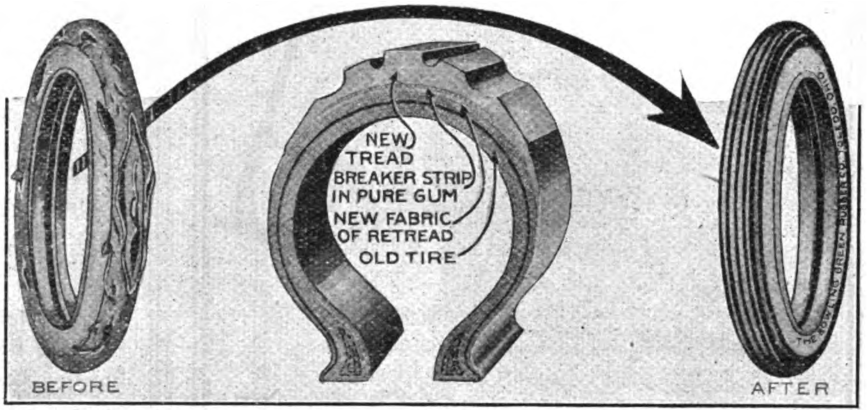
Official SALES AND SERVICE For New England.

Complete stock of parts always on hand.

Write for Price List.

Exhibiting at the Boston Show.
SPACE 443.

Cement-on-Retreads



Give 3,500 to 6,000 Added Mileage At Half the Cost of A New Tire

Dealers: You can instantly add this new money maker because it does not require special shop equipment.

Cement-On-Retreads will make you twice the profit per dollar invested that you can get selling new tires.

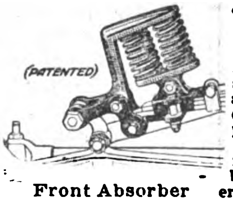
There are no mechanical difficulties; any tire man can make a perfect job with these reliable, tested Retreads.

Cement-On-Retreads make a quick, logical appeal to car owners, because they can add as much mileage as a new tire can give, at only half the cost.

Cement-On-Retreads completely renew a tire's wearing surface and strengthen the sidewalls, practically building a new tire on the original carcass.

Good Territory for Live Dealers. Write Today.

THE BOWLING GREEN RUBBER CO.
1202 Prospect Street, Toledo, O.



Front Absorber

"Champion" Shock Absorbers for Ford Cars.

A new spring suspension which absorbs jar and rebound. A wonderful E-Z ride suspension. (E-Z to attach.) Guaranteed by mfrs. Exclusive sales; big profit; agents, owners, dealers. Dept. H.

Champion Shock Absorber Sales Co., Inc., Indianapolis, Ind., Mfrs.

PRINTING.

250 Business Cards neatly printed and prepaid for $1. Stationary and commercial printing. Write your other wants.

CHARLES LEHMANN.
836 Blue Island Ave., Chicago, Ill.

---

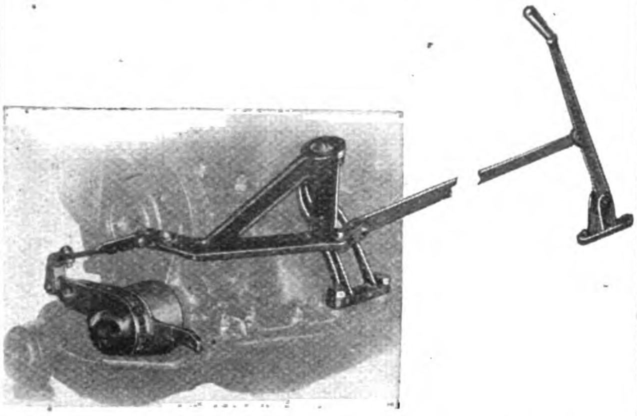
100 Auto Recipes and Suggestions for 25 cents. Save auto repairs by writing today. We do this to advertise our association. Am. D. B. Assn., Inc, 948 East Fourth St., St. Paul, Minn.

Classified Advertising Brings Big Returns

BARRETT SELF STARTER
For Ford Cars

PLEASURE, COMMERCIAL OR TRUCK

SOLD UNDER FIVE-YEAR GUARANTEE AS TO SERVICE AND DURABILITY.
NOISELESS AND ECONOMICAL.



The Barrett Motor Starter is the only perfect mechanical starter devised; it has no chains, cables nor pulleys, but works on direct leverage that insures lasting qualities and perfect action. It is simple to attach, requiring no special ability nor mechanical knowledge.

It is operated from the seat by a hand lever placed alongside the emergency brake lever; except for this the whole starter is under the hood and out of sight.

Due to its direct leverage it eliminates 75% of the effort used in cranking.

In case of backfire it releases automatically, eliminating all danger; it will stand any amount of backfiring with no harm to the engine, starter, or operator.

Indorsed by prominent automobile engineers and mechanical experts as mechanically perfect in every respect and the best that has come under their observation.

With the Starter is supplied a Special Primer which vaporizes gas into cylinders of engine, thus insuring easy starting in zero weather.

List Price, Starter and Primer Complete, $25.00

Exclusive agents wanted in every city and county.

Write us at once for full particulars.

See our Exhibit at the Boston Show.

Barrett Motor Starter Mfg. Co., Inc.
1777 Broadway, New York.

THE ACCESSORY AND GARAGE JOURNAL
INDEX TO ADVERTISERS

Page
A B C Starter Co 72
Adamson Mfg. Co 67
Advance Auto Accessories Corp 20B
Air-Tight Steel Tank Co 80
Akron Rubber Mold and Machine Co 69
American Bureau of Engineering 71
American Mfg. and Supply Co 72
Anti-Borax Compound Co 74
Atlas Tire Co 65
Auglaize Motor Car Co 68
Auto Parts Co 77
Automobile Devices Co 75

Barrett Motor Starter Mfg. Co., Inc 78
Bilodeau Ball Bearings Works 80
Bowling Green Rubber Co 77
Bowser & Co., Inc., S. F 68
Brightman Auto Exchange 77
Brunner Mfg. Co 4
Bunting Brass and Bronze Co 75

Catherman, J. A 76
Champion Shock Absorber Sales Co 77
Chicago Eye-Shield Co 67
Connecticut Auto Parts Co., Inc 76
Cooper Auto Supply Co .... Cover
Corps Brothers 77
Culver Stearns Mfg. Co 66
Cuno Engineering Co 73
Curtis Pneumatic Machine Co 67

Detroit Accessories Corp 13
Detroit Magneto Exchange 76
Detroit Show Case Co 70
Dixon Crucible Co., Jos 70
Du Pont Fabrikoid Co., E. I 7
Dyer Co., G. H 1

Faw, Inc., J. H 66
Fisk Rubber Co 64D
Fitzgerald Mfg. Co .... Cover

Gates Rubber Co 2-3
Globe Mfg. Co 70
Gray & Davis, Inc .... Cover
Greb Co., The 65

Hartog, S. D 6
Heald Machine Co 5
Heintz & Co., Jas. C 68
Hubbard, M. K., Spring Co 72

International Metal Polish Co 20A

Jefferson Electric Mfg. Co 75
Jenkins Vulcan Spring Co 12

Kennedy Car Liner and Bag Co 75
King-Bull Mfg. Co 67

INDEX TO ADVERTISERS

(CONTINUED.)

Page

Lawrence, Inc., Geo..........74
Lozier Motor Co..........76

Magneto Exchange and Repair Shop..........76
Martin Mfg. Co..........75
Merchant & Evans Co..........73
Metal Hose and Tubing Co..........71
Miller, Chas. E..........80
Mitchell & Smith, Inc..........67
Motor Specialties Co..........70
Mueller & Co., R. S..........67

New Departure Mfg. Co..........67
New England Mills Co..........15
New Era Spring and Specialty Co..........68
New York Coil Co..........69

Ohio Smelting and Refining Co..........74
Oldfield Tire Co..........17-18-19-20

Petterson Engineering & Manufacturing Co..........74
Piston Ring Co..........65
Puritan Machine Co..........76

Raybestos Co..........Insert
Rich Mfg. Co..........68
Rosen, A. W. & Co..........73
Ross-Gould List and Letter Co..........80

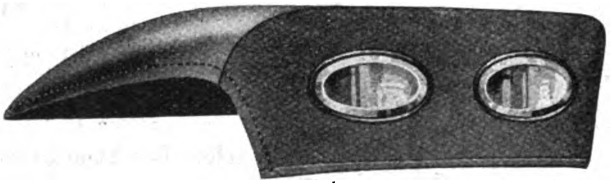
Savidge, A. C..........71
Scaife, Wm. B. & Sons Co..........67
Schrader's Son, Inc., A..........71
Service Station Equipment Co., Inc..........72
Shaler Co., C. A.......... 9
Specialty Mfg. Co..........76
Spring Leaf Lubricator Co..........80
Stenman Electric Valve Grinder Co., Inc..........80
Suffolk Mfg. Co., Inc..........80

Taft-Peirce Co..........80
Thomas, John H..........68
Tire Construction Co.......... 8

United Engine and Mfg. Co..........10
United Motors Service, Inc..........11
Universal Battery Co..........14

Vanderpool Co., Wm..........73
Victor Mfg. and Gasket Co..........15
Victory Liberty Loan..........16

Walden-Worcester, Inc..........Cover
Webber Mfg. Co..........72
Weston Electrical Instrument Co..........71
Wilkins & Hovey Co..........76
Wilson, K. R..........74
Wisconsin Auto Top Co..........79
Workrite Mfg. Co..........74



Badger

SLIP ROOFS

A wonder recover for Auto Tops. Great improvement. Greatest value ever offered. Surpasses anything on the market. Wins every motorist's preference. Most profitable dealer can handle. For practically all makes of cars.

COMPLETE—everything, Ready to put on—and put on in a few minutes by anyone. Guaranteed fit.

Prices that will make you wonder how we can give so much sound value for the money. Investigate. Get the facts. Get the business. Write now for particulars and prices. Also catalog of

BADGER SEAT COVERS

Choicest selection of beautiful, durable fabrics. Tailored fit—guaranteed. For all makes of cars. A quality line at amazing money saving cost.

BACK CURTAINS
With Plate Glass Windows

Pierce-Arrow effect! Eliminate unsightly celluloid. Add big beauty value to any car. Reasonable price makes them rapid sellers.

TIRE COVERS

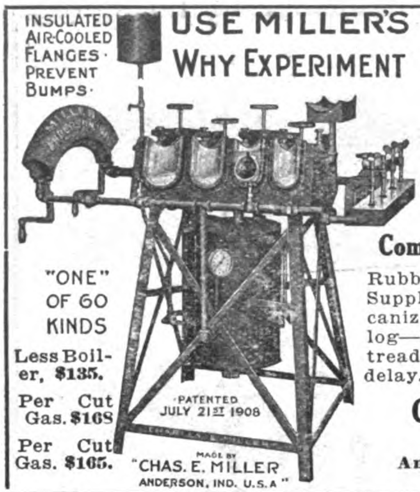
The famous Badger quality. Known world over for superior merit. Most serviceable materials procurable for tire protection. All sizes—at quick selling prices.

Get a line on the entire Badger line. Every article a trade increaser. All dependable—all profitable—for all dealers.

Write today!

Wisconsin Auto Top Co.
1 MAIN ST., RACINE, WIS.

USE MILLER'S
WHY EXPERIMENT


INSULATED AIR-COOLED FLANGES PREVENT BUMPS
PATENTED JULY 21ST 1908
MADE BY "CHAS. E. MILLER ANDERSON, IND. U.S.A."

"ONE" OF 60 KINDS

Less Boiler, $135.
Per Cut Gas. $168
Per Cut Gas. $165.

Extra Ply Tires, Tubes, Vulcanizers

60 kinds.

6 kinds Wrapping Machines—Tire Building Stands—Air Pumps—Repair Stocks—Reliners—Steam Boilers.

Complete Tire Shop Outfits

Rubber Workers Tools and all Supplies—Boot and Shoe Vulcanizer—FREE 84-page Catalog—Four Cavity Ribbed Retreader. Write today. Don't delay.

CHAS. E. MILLER
1402 Meridian St.,
Anderson, Ind. U. S. A.

AIR TIGHT STEEL TANK CO. PITTSBURGH, PA.
COPPER BRAZED AIR TANK

TANKS

The tightest, safest, strongest tank it is possible to construct by any known method. Process originated by us over twenty-five years ago.

We also make a special portable emergency tank for filling tires. Throw it in your emergency car and take it with you.

Gasoline and Oil Storage Tanks and Pumps

AIR-TIGHT STEEL TANK CO.
Main Office and Works
PITTSBURGH, PA.

Guaranteed Bearings

We Exchange Rebuilt Bearings for old or worn ones **BILODEAU** BALL BEARINGS WORKS

In Order to Obtain

EFFICIENCY and ECONOMY

in Bearings, send your worn bearings to us for repairs. We will rebuild them, make them as good and better than new at a fraction of the cost of new bearings.

SATISFACTION GUARANTEED.

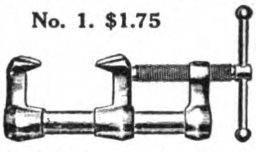
Garage and Repair Men cannot afford to miss this splendid service. **No delay.** We carry a big stock of Rebuilt Bearings to exchange for worn ones. Catalog sent and discounts quoted on application.

BILODEAU BALL BEARING WORKS
66 Stanhope Street, BOSTON, MASS.

Knowlson Spring Spreaders

No. 1. $1.75

Both Guaranteed.
Either or Both Delivered.
Your Money Back if You Want It.



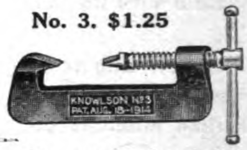
They Fit Any Spring. Easy to Operate. Both Drop Forged.

DON'T RUIN YOUR SPRINGS BY NEGLECTING THEM!

No. 3. $1.25

Nickel-plated and polished.

100% EASIER RIDING.



SQUEAKING STOPPED.

Spring Breakages Eliminated.

Use a Heavy Grease (not oil) for real results.

Gun metal yoke, screw and handle nickel.

At your Dealers, or Sent Direct.

SPRING LEAF LUBRICATOR CO., Dept. 4, Ann Arbor, Mich.

PROFIT ON YOUR LABOR

STENMAN VALVE ELECTRIC GRINDER

Repairers need it; Efficiency prompts its use; Scarcity of workers demand it.

In twenty minutes eight valves can be ground easily and accurately. A perfect job guaranteed. A novice can operate it. The old way by hand takes two hours or more with uncertain results. Saves the time and adds it all to profits.

Plugs in on any lamp socket. A or D current, 110 or 130 volts. Made for higher voltage when required.

State voltage desired when ordering.

Sold by dealers or direct.

The Stenman Electric Valve Grinder Co.
42 Southbridge Street, Worcester, Mass.

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 9000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable reference book free.* Write for it.

50¢ Saves Dollars on Your Purchases

Get several quotations on what you buy. It will save many dollars. For 50c (coin or stamps) we will send a few names of manufacturers, jobbers, dealers, or individuals who sell what you want to buy.

Ross-Gould Mailing Lists St. Louis

For sale by accessory and hardware dealers or by MAIL POST-PAID 50c EACH

RAIN-SNO CLEAR VIEW

WINDSHIELD CLOTH

PREVENTS ACCIDENTS

Just RUB IT OVER THE GLASS and RAIN or SNOW cannot collect to obstruct the vision.

INSIST UPON THE "RED CLOTH"

Which is guaranteed to give continuous use for one year or money refunded. Made only by

SUFFOLK MANUFACTURING CO., INC., DEPT. D.
60 LONG WHARF BOSTON, MASS.

50% to 90% Saving

on Motor Bearing Fitting is Effected by means of

MARTELL ALIGNING REAMER

For new work or repair work on all makes of motors it insures:

Perfect alignment of all bearings. Correct position of Crankshaft with reference to centers of camshaft, driving gear and pinion. Correct size of bore of bearings, allowing for oil clearance. **Write for our Repair Reamer Booklet.**

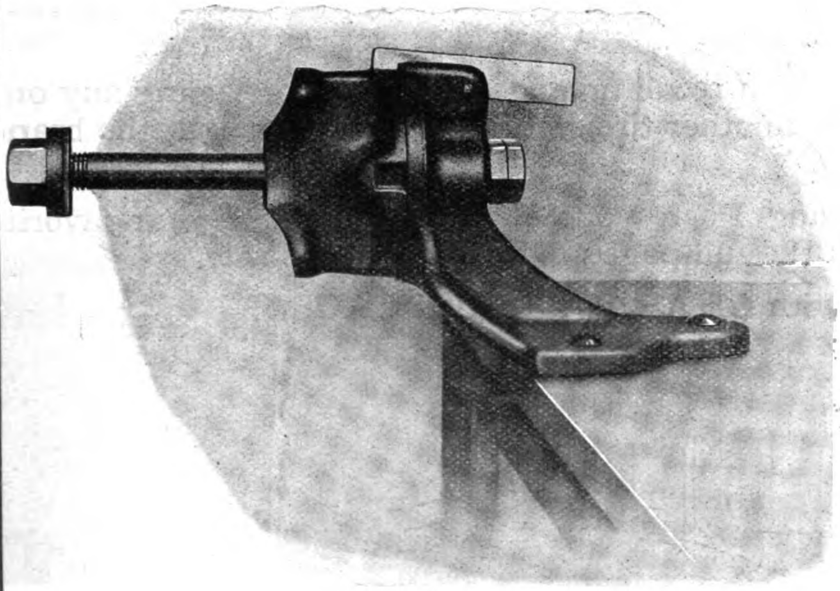
TAFT-PEIRCE
Woonsocket, R.I., U.S.A.

New York, Woolworth Bldg., Detroit, Majestic Bldg. (300)

"It's Simple and Easy to Handle Ford Blocks"

—WITH—

THE A. B. MOTOR REPAIR STAND

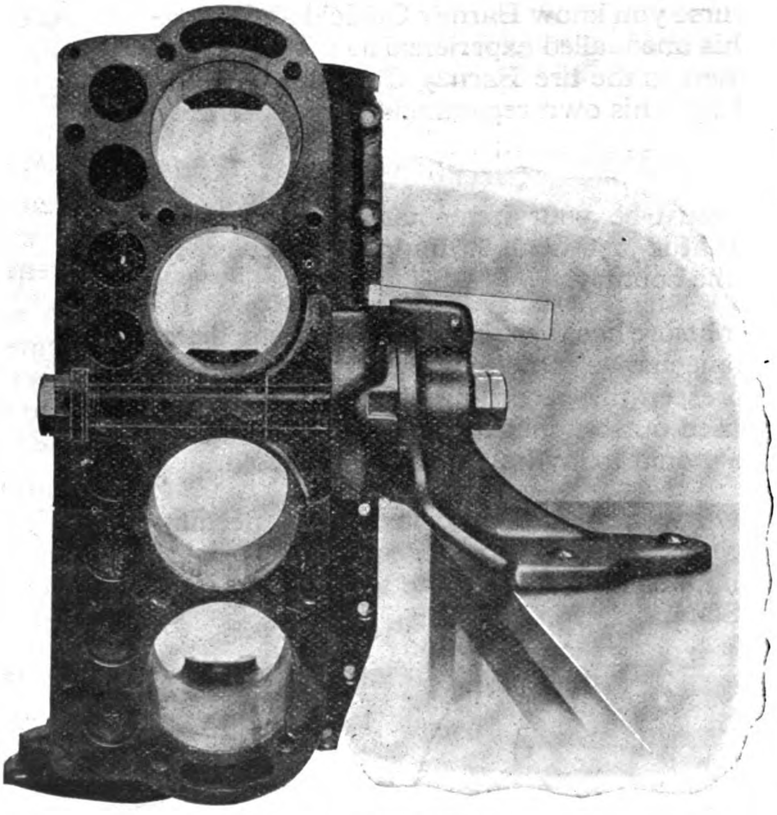


A complete Ford motor can be placed on the A. B. stand, taken apart, worked on in the four positions and reassembled, more easily and quickly than by any device or method ever used.

The block is breast high at all times, the top, bottom and both sides are clear and all the bench space available for tools and parts.

Important Points

1. Tested to 1,000 lbs.—Ford motor assembly weighs 330 lbs., block 80 lbs.
2. Bolt cast in revolving member eliminating trouble in placing block in position.
3. Block held securely and moved to new position by knocking lock-piece out of slot, turning as desired and locking.
4. Requires little room, weighs 22 lbs.
5. Price very attractive.



Patent Applied for

A NEW DYER DEVICE

THE G. H. DYER CO. ASK YOUR JOBBER **Cambridge, Mass.**

A Sales Story That is Selling Tires

Motoring Public Immediately Grasps the Common Sense Reason for Oldfield Tires and Buys—Are You in Line, Mr. Tire Merchant?

FORGET for a moment that you are a tire merchant, and imagine yourself simply a car owner—a tire BUYER.

To you all tires now seem alike. You recall no good reason for preferring any one of them. When you have needed another tire, you have always bought the brand that was easiest to get.

But today your Saturday Evening Post, your Literary Digest or your favorite monthly magazine brings to you the full page advertisement opposite.

Read it! Here at last is a tire with CHARACTER and CAUSE!

Of course you know Barney Oldfield and recognize his unequalled experience as a tire expert. And here is the tire Barney Oldfield has developed with his own recommendation back of it.

"I'll buy Oldfields!"

Such must be your immediate determination. And that is just what is happening today, all over the country.

Never before has there been such an immediate, spontaneous welcome to any new tire. Had we not foreseen this record-breaking demand, and increased our original facilities to take care of it, we would today be hopelessly oversold.

But we were ready. So, instead of needing three, four or five years to secure nation-wide distribution, we shall achieve that end in ONE SEASON.

And we will always have tires for every Oldfield Tire Merchant to sell.

Best of all, Oldfields are tires which experts immediately recognize as of the highest quality and performance promise.

Every Oldfield Tire—fabric or cord—is built by a two-cure, wrapped-tread process, and the treads are tempered with zinc.

In every detail of design, workmanship and materials, these tires are as good as the sales story that introduced them. They are tires you can sell—tires on which you can found a PERMANENT AND PAYING BUSINESS.

Perhaps we have as yet appointed no distributor in your city. There may stil be time for you to put yourself in line for this profitable franchise. Don't let the opportunity pass! Write or wire today for an application blank.

THE OLDFIELD TIRE CO.
BARNEY OLDFIELD
PRESIDENT
CLEVELAND, O.

OLDFIELD TIRES

"The Most Trustworthy Tires Built"

Your Own Expert

Were you to name the one man whose recommendation on a tire you would value most highly, you would surely name Barney Oldfield—race champion, transcontinental tourist and pioneer.

Pick the one man best fitted to build you a tire you can implicitly trust at all times—in all conditions—again you will select Barney Oldfield—the world's greatest tire user and tire student.

Barney Oldfield has anticipated this demand from you and the thousands of other motorists who want a safer, a more durable, a more trustworthy tire.

The tire is here—the Oldfield Tire.

A strong corporation makes possible its production and sale in all sizes—fabric or cord, plain or anti-skid.

Behind this tire stands the recommendation of Barney Oldfield who says, from the wealth of his long tire study and matchless experience—

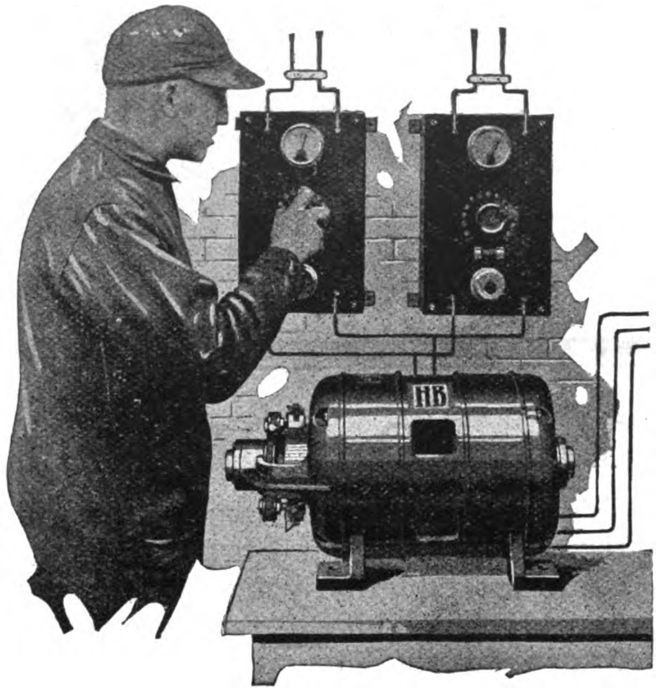
> *"Here is the most trustworthy tire built. I have trusted it and it has not failed me. You can trust it too."*

THE OLDFIELD TIRE CO.
BARNEY OLDFIELD
PRESIDENT
CLEVELAND, O.

OLDFIELD TIRES

"The Most Trustworthy Tires Built"

Make Battery Charging Pay



BIGGER PROFITS

Use an HB 16-Battery Charger

This season it is merely a question of how much battery charging business you can handle, simply a matter of equipment. The business is here—waiting for you. Why not prepare NOW to take it? More old cars are being driven this year, with batteries in constant need of recharging. All new Fords are to have electric equipment with storage battery.

You Can Easily Clear $150 to $250 a Month Net Profit

Others are doing it—why not you? It costs you 12c to 15c to recharge a battery with HB Charging Equipment, depending on the battery. The customer pays 75c to $1.50. Quick, clean profit, easily made. At least 500 per cent. on every battery charged. What other feature of your garage business pays a profit anywhere near that? Compare your profits on oil, gasoline, repairs, tires, accessories, etc., with the money you make on battery charging. And on top of that, remember that battery charging requires no selling effort, involves no expensive labor, takes up only a little waste space in one corner of your garage, and makes money 24 hours a day.

Battery Charging Will Be the Biggest Money-Maker in Your Garage

The HB 16-Battery Charger recharges 1 to 16 6-volt batteries, or their equivalent in 12 or 24-volt batteries at one time. A profit of at least $10.00 on each capacity run of your charger. No electrical or mechanical knowledge is required to install the HB Charger or operate it. A few minutes time from any mechanic is all the attention it requires, save for occasional oiling. There are no delicate adjustments or expensive renewals. The HB 16-Battery Charger is sturdy and dependable, built of finest materials to stand hard, daily service for years.

HB CHARGERS ARE THE MOTOR GENERATOR TYPE

There are many charging appliances on the market which on first impressions look good. Investigate the operating expense and the cost of parts that wear out, burn out, causing a constant source of trouble, worry and needless expense. It should mean something to you that 75% of all HB Motor Generator Chargers sold replace these fragile machines. Remember, it's not first cost that is so important to you as the monthly bills for current, repairs, renewals, etc. Remember you are buying a battery charger for years of hard service. Get an HB Motor Generator Charger and be free from all expense and trouble. Motor Generator Chargers are sturdy, dependable and last for years under hardest usage. If in doubt, write us for full data on various types of battery charger. Buy Your Charger for Long Service and Big, Steady Profits.

$57 *Puts an HB 16-Battery Charger in Your Garage on Money-Back Guarantee*

Balance in 10 monthly payments of $23 each. Earnings will easily pay for machine as it runs. Furnished complete with 2 charging panels, each capable of carying 8 6-volt batteries. Each panel complete with ammeter, variable resistance fuses, rheostat, switch, etc., ready to install. Uses city electric power, 2 or 3 phase current, from wires now in your garage. The HB 16-Battery Charger cannot operate on single phase current. Sold on HB Absolute Money-Back Guarantee of Satisfaction. If not satisfied after using 10 days, you may return charger to us and we will refund all you have paid us. Start your battery business NOW—Get those big profits. Be the first man in your locality to have an HB Charger. It will pay you handsomely and bring new business in all lines of garage work. ORDER NOW, you run no risk. Tear out this ad and mail today with your $57 check for first payment on trial order.

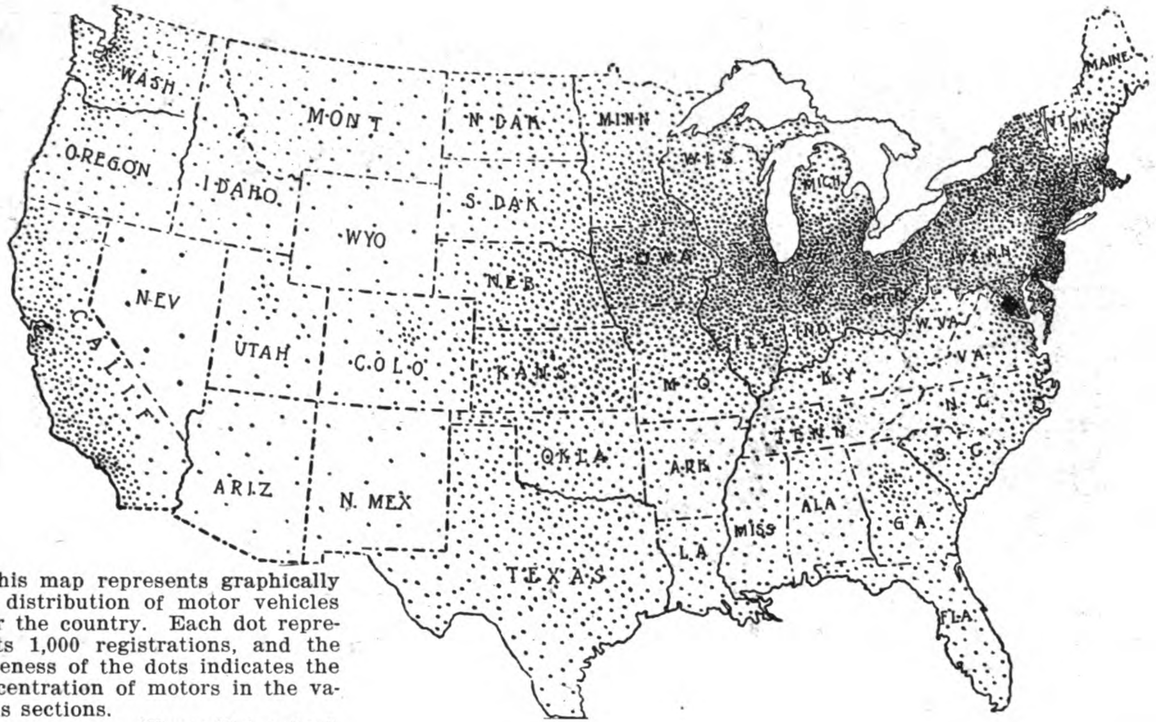
MONEY PUT IN AN HB CHARGER IS AN INVESTMENT, PAYING YOU BIG, STEADY PROFITS FOR YEARS TO COME. ORDER ON TRIAL TODAY.

HOBART BROTHERS CO.

Box C4, TROY, OHIO

SUCCESSFUL MANUFACTURERS SINCE 1893

Every Dot a Business Opportunity For Automobile Repairmen



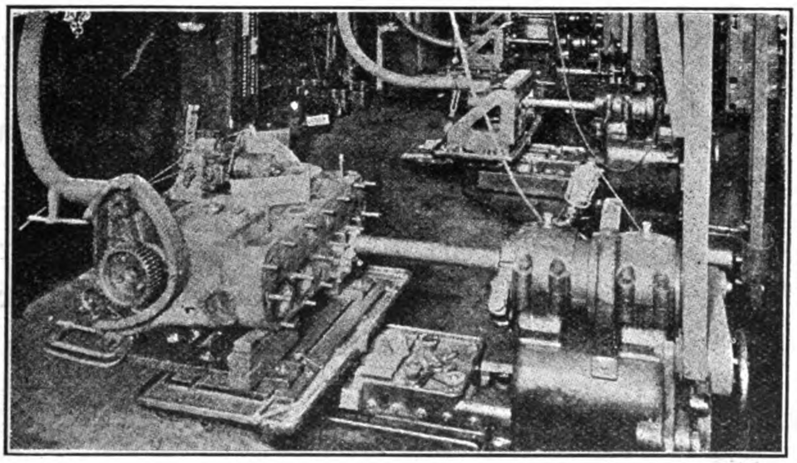
This map represents graphically the distribution of motor vehicles over the country. Each dot represents 1,000 registrations, and the closeness of the dots indicates the concentration of motors in the various sections.

(From Motor Age)

The automobile user now realizes it is possible to have his engine put in shape as good, if not better than new, by having the worn and scored cylinders reground on the Heald Cylinder Grinder. He finds he gets better compression, developing more power with a smaller consumption of oil and gas.

The above map shows the distribution of 6,000,000 cars and trucks registered in the United States in 1918. Only a few repair shops are as yet equipped to properly regrind cylinders. Here is an excellent opportunity for the live repairman. Right from the start he will have plenty of work and can command good prices.

A Line from You will bring full instructions from Us.



The business of the Houpert Machine Co., Harris Avenue and Marion St., Long Island City, New York, has been literally built up on Heald Grinders.

Starting at a time when the automobile repair business was in comparative infancy, they found a great and growing demand for some method of correcting the faults in cylinder boring.

They began with one Heald Grinder and now have eight.

The Heald Machine Co.

Worcester, Mass.

BRANCHES:

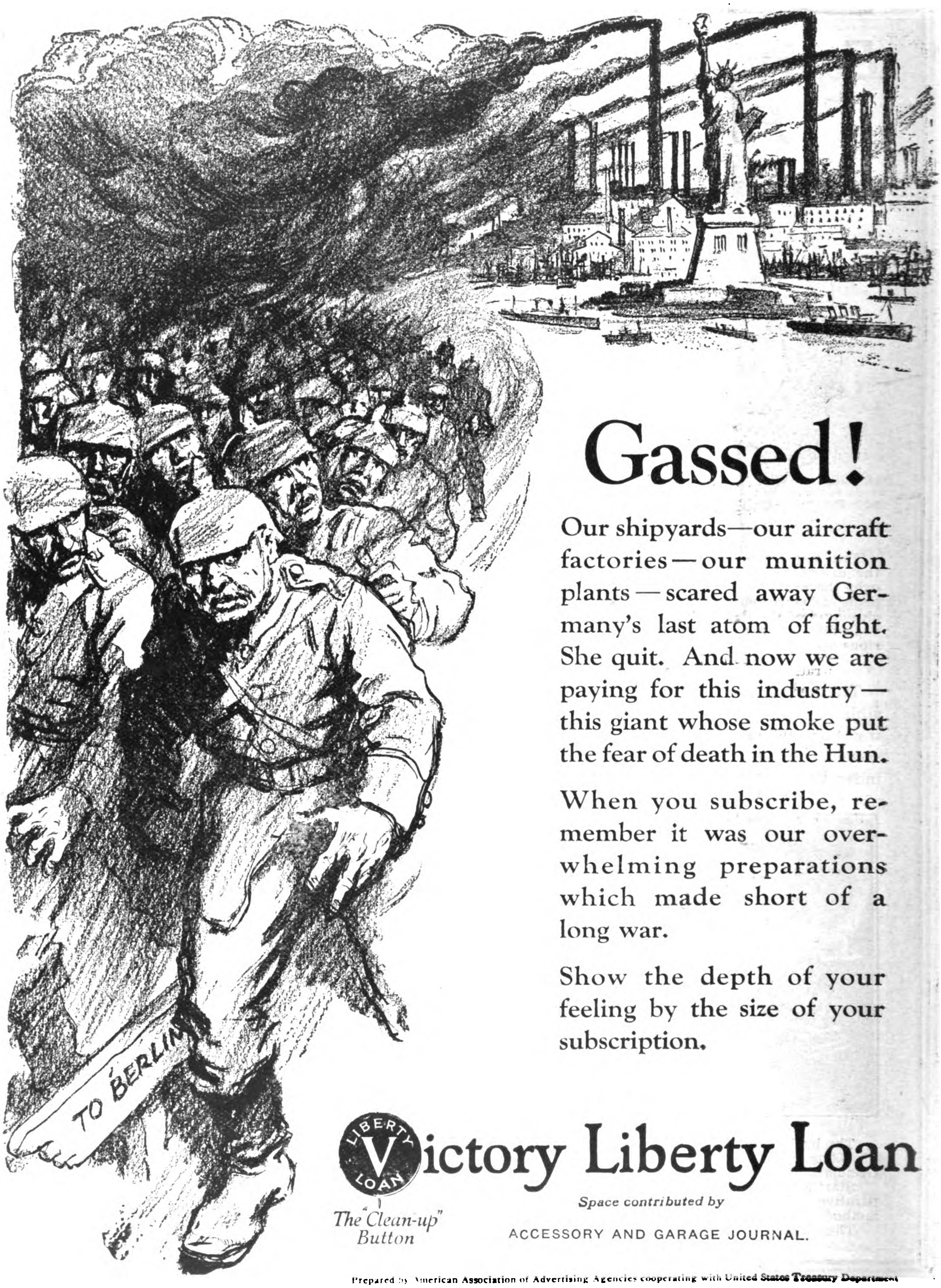
New York................839 Singer Bldg.
Philadelphia......1308 Commonwealth Bldg.
Chicago..............24 South Jefferson St.
Detroit................911 Majestic Bldg.
Cincinnati.......311 Provident Bank Bldg.
Cleveland..............721 Engineers Bldg.

Western Agents:

Eccles & Smith Co., San Francisco, Los Angeles and Portland
Salt Lake Hardware Co....Utah and Idaho

Foreign Agents:

Alfred Herbert, Ltd...............England
Societe Anonyme, Alfred Herbert, France and Switzerland
Societa Anonima Italiana, Alfred Herbert, Italy
F. W. Horne Co...................Japan
Wilh. Sonesson & Co., Sweden, Denmark and Norway
The American Machinery Syndicate, Spain and Portugal



Gassed!

Our shipyards—our aircraft factories—our munition plants—scared away Germany's last atom of fight. She quit. And now we are paying for this industry—this giant whose smoke put the fear of death in the Hun.

When you subscribe, remember it was our overwhelming preparations which made short of a long war.

Show the depth of your feeling by the size of your subscription.

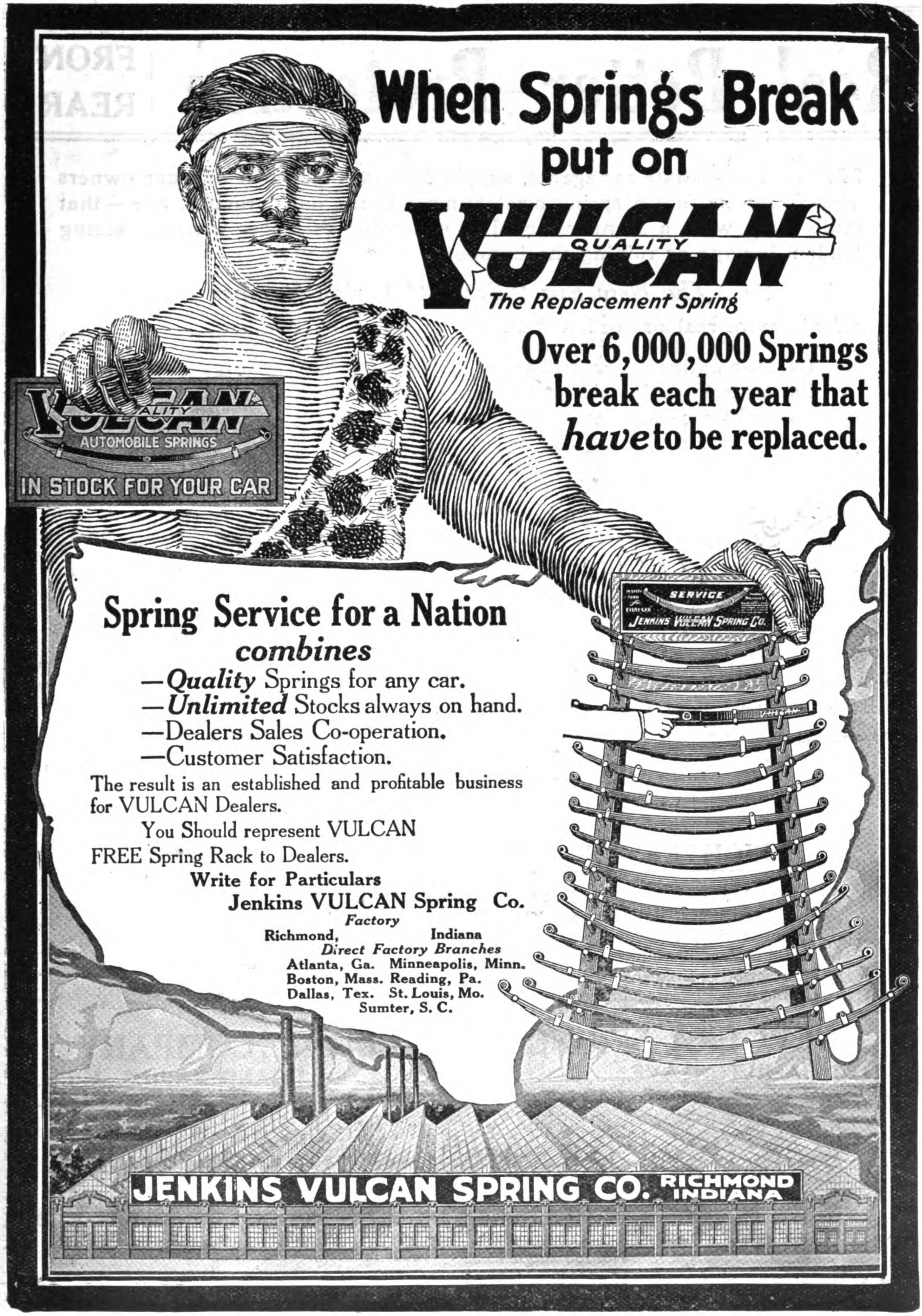
LIBERTY V LOAN Victory Liberty Loan

The "Clean-up" Button

Space contributed by

ACCESSORY AND GARAGE JOURNAL.

Prepared by American Association of Advertising Agencies cooperating with United States Treasury Department


VULCAN QUALITY
AUTOMOBILE SPRINGS
IN STOCK FOR YOUR CAR
SERVICE
JENKINS VULCAN SPRING CO.
VULCAN
JENKINS VULCAN SPRING CO. RICHMOND INDIANA

When Springs Break put on

VULCAN QUALITY

The Replacement Spring

Over 6,000,000 Springs break each year that *have* to be replaced.

Spring Service for a Nation

combines

—***Quality*** Springs for any car.
—***Unlimited*** Stocks always on hand.
—Dealers Sales Co-operation.
—Customer Satisfaction.

The result is an established and profitable business for VULCAN Dealers.

You Should represent VULCAN

FREE Spring Rack to Dealers.

Write for Particulars

Jenkins VULCAN Spring Co.
Factory
Richmond, Indiana
Direct Factory Branches
Atlanta, Ga. Minneapolis, Minn.
Boston, Mass. Reading, Pa.
Dallas, Tex. St. Louis, Mo.
Sumter, S. C.

Real–Better–Protection { FRONT REAR

75% of all up-to-date car agents, supply dealers, repairmen and car owners *already* realize that a spring steel bumper is the only practical one—that really does what a bumper should in absorbing the shock without causing hidden damage or ruining the bumper.

The New Era "Better" Spring Bumper

affords more real protection than any other spring bumper.

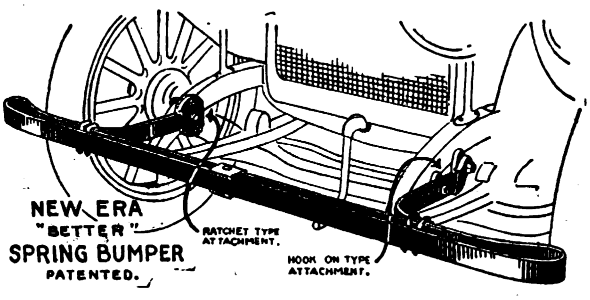
Its double (tied in center) bars of spring temper make a firmer resiliency. Its separate, adjustable supporting arms—only semi-tempered and if a hard blow is received they will bend and are easily straightened—or replaced free at any time.

Absolutely Interchangeable

—Not a dollars worth of dead New Era Bumper stock at any time. The standard hook-on arms fit 95% of all fronts and many rears. The specials for *all* makes—fronts and rears—easily—quickly fitted. No rattle—no vibration—no break—no rust. Real, permanent bumper insurance.

No. 10 Standard Black	$10.50
No. 11 Standard Nickel	$12.60

Specials and all Rears $2.00 extra.



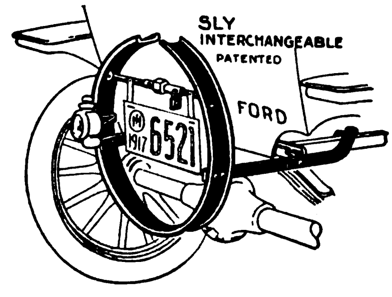
No. 12 Ford Front Black	$9.50
No. 14 Ford Front Nickel	11.60
No. 65 Ford Rear Black	9.50
No. 66 Ford Rear Nickel	11.60

LIGHTER — NEATER — STRONGER — BETTER

To try a few New Era "Better" Spring Bumpers is to like them thru and thru—and receive much repeat business from pleased users.
Prompt service on standards and difficult specials.
Liberal dealers' discounts—thru jobbers—or direct—with jobber's name.
Get descriptive circular of a simplified—interchangeable—modern spring bumper—and sell hundreds of rears and fronts.

NEW ERA SPRING & SPECIALTY COMPANY

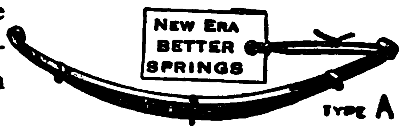
1180 HAMILTON AVE., GRAND RAPIDS, MICH.



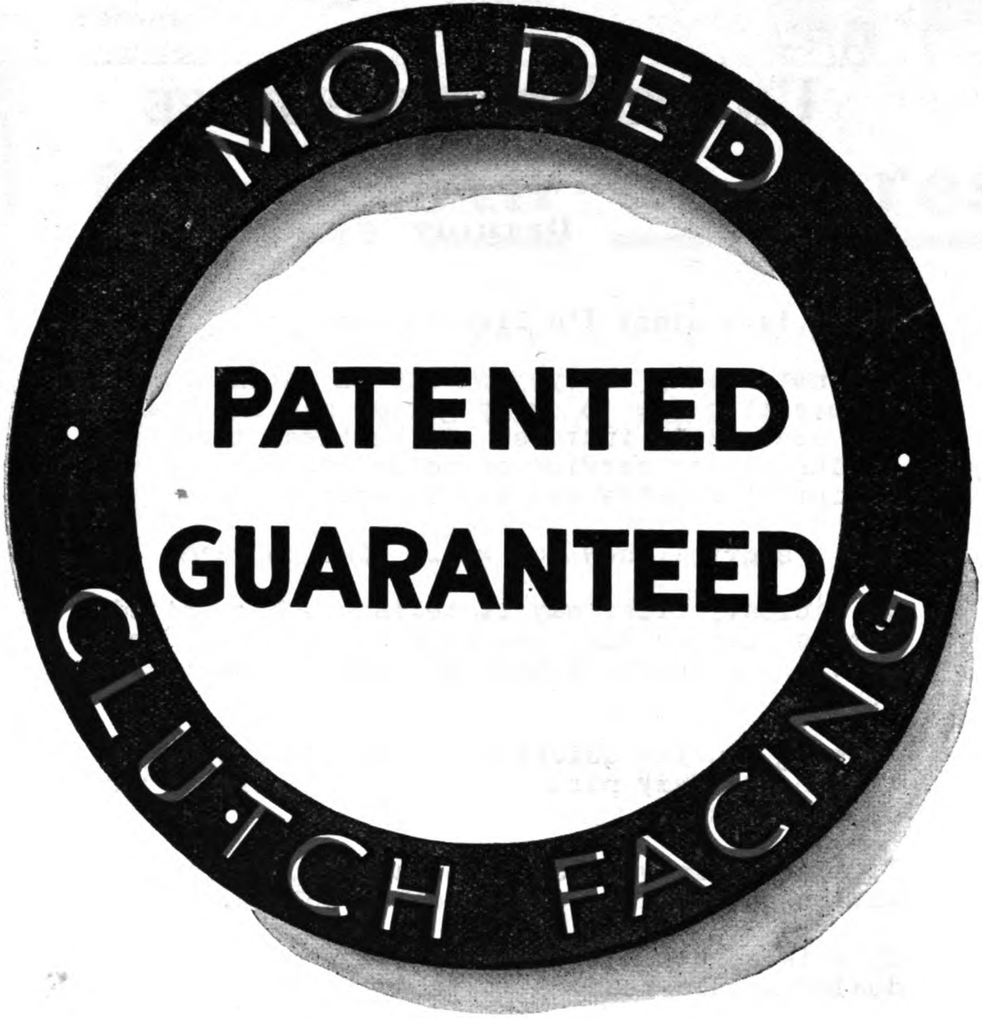
The one big selling satisfactory—strapless — interchangeable every Ford need Tire Carrier.

No. 150 Single $5.25
No. 252 Double $7.35

For eight years the exactly duplicated springs that DO stop the breakage at lowest list prices on 500 numbers.



Raybestos



Something New
Something Better

Raybestos Molded Clutch Facing brings remarkable efficiency and substantial improvement to the operation of *any* disc clutch. Creates greater power-transmitting contact than the *best* woven facing. One continuous ring. No ends to catch in clutch-drum or housing. Immediate, smooth response. Instantaneous release. Service absolutely, definitely, positively guaranteed.

Packed in cartons. Sizes and car names printed on outside of carton.
Easy to stock, sell, handle. Small stock meets practically *every* demand.

THE RAYBESTOS COMPANY Bridgeport, Conn.

An Open Letter to Garage Owners

UNITED MOTORS SERVICE
INCORPORATED
782 WOODWARD AVE
DETROIT

There is a story I'd like to send you.

Its not a long story, but its an intensely interesting one to every garage man and dealer who desires to increase his business through giving better service on motor car electrical equipment repairs and adjustments.

Its a story I know you would like to read.

In a clear, brief way it tells you how United Motors Service Inc. can help you give better service on Delco, Klaxon and Remy electrical equipments.

Showing you the quickest way to get new Delco, Klaxon and Remy parts is but one important part of this booklet.

It also tells you how to obtain expert factory advice on puzzling electrical problems.

This is something I believe every garage man and dealer should read. It is just off the press.

There is a copy for you--a post card request brings it to you.

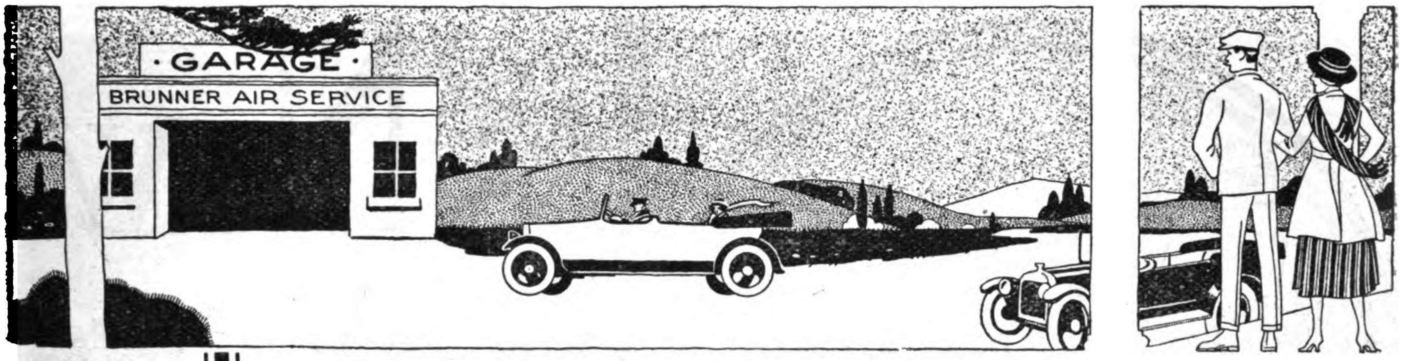
Yours very truly,

UNITED MOTORS SERVICE INC.
J. L. Elwood
General Manager.

MOTORS SERVICE
TRADE MARK

NATIONAL FACTORY SERVICE FOR
Delco KLAXON REMY
BRANCHES IN PRINCIPAL CITIES GENERAL OFFICES AT DETROIT

UNITED MOTORS SERVICE
INCORPORATED



BRUNNER Air Compressors

BRUNNER AIR SERVICE
AIR
THE MOTORIST WHO IS BRUNNERWISE
KNOWS BRUNNER SERVICE SATISFIES

This is the Enameled Steel Service sign furnished free to Brunner users. It is a business bringer.

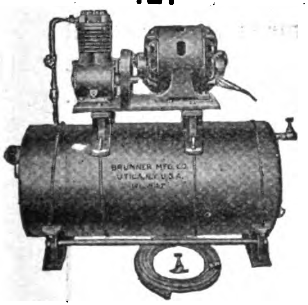
A Brunner Outfit is always on the job—never out of order—never refuses to work. It is economical—your mechanic's time is not wasted keeping it working—and the operating cost is small.

On a Brunner Compressor there's no need for extra equipment to aid the motor—no restriction of lubrication to pull down the efficiency, increase the wear and run up large electric bills.

An automatic controller maintains a proper working pressure at all times—the patron is not kept waiting for air.

Brunner Compressors are built to give day in and day out service under the hardest working conditions. They are made for long wear—the bearings are as carefully made and fitted, cylinders as carefully ground, piston rings fit as perfectly, as in a high priced automobile engine.

The Brunner Compressor gives your patrons the best service. Have this dependable, economical air system in your garage.



No. 542 is a complete unit ready to use—correctly designed and properly assembled. Full specifications in catalog.

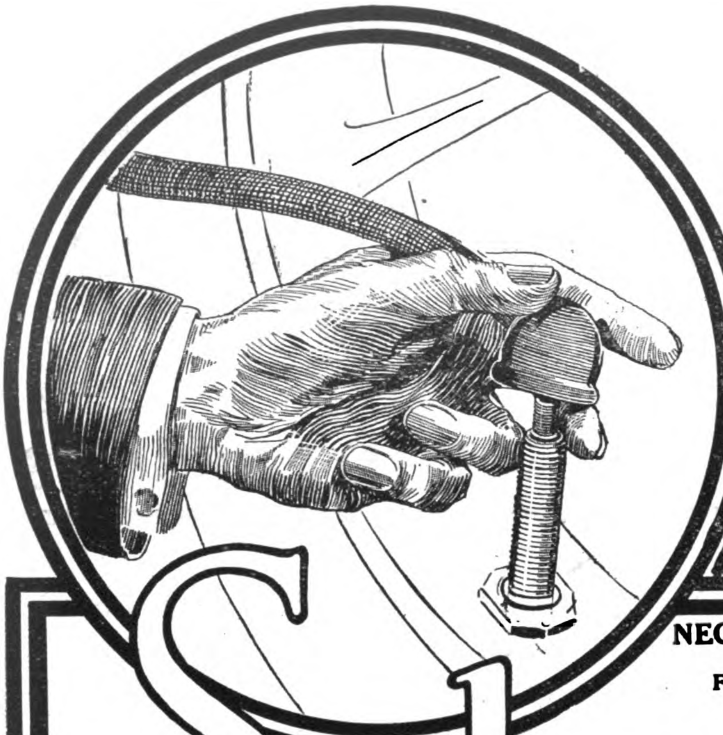
Write for illustrated booklet and name your jobber.

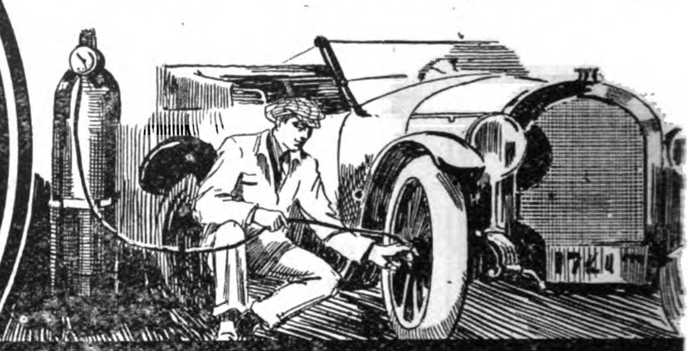
BRUNNER MANUFACTURING COMPANY

General Office and Plant
UTICA, N. Y.

Cincinnati Branch
CINCINNATI, O.

It's New!





NECESSITY IS THE MOTHER OF INVENTION

For a new disease there must be discovered a new remedy.

Schrader

AUTOMATIC INFLATING VALVE

prevents EXOSMOSIS of the air-tank.

If you look it up you will find that EXOSMOSIS means the passage of gases through membranes or porous media from within outward.

The SCHRADER AUTOMATIC INFLATING VALVE prevents the passage of your costly compressed air from within your siphon or tank outward into space.

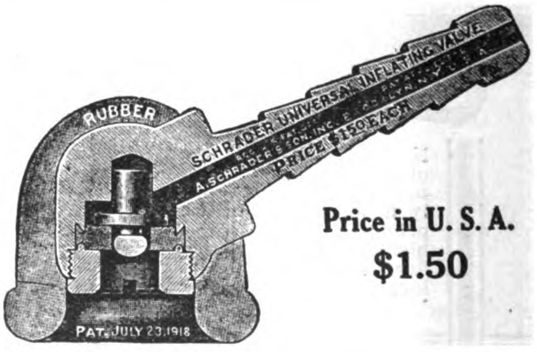
The customer for whom you have installed a "free air" station does not mean to do it, but he does forget to turn off the flow of air after he has inflated his tires at your "pump." The result is that some of your "free air" goes into tires but most of it escapes and is wasted.

We now offer you the means of preventing this waste. With a Schrader Automatic Inflating Valve at the end of your air hose the air supply is *automatically* shut off the minute you remove the appliance from the tire-valve.

It is protected by a thick covering of rubber so that it won't dent or scratch the enamel of the car.

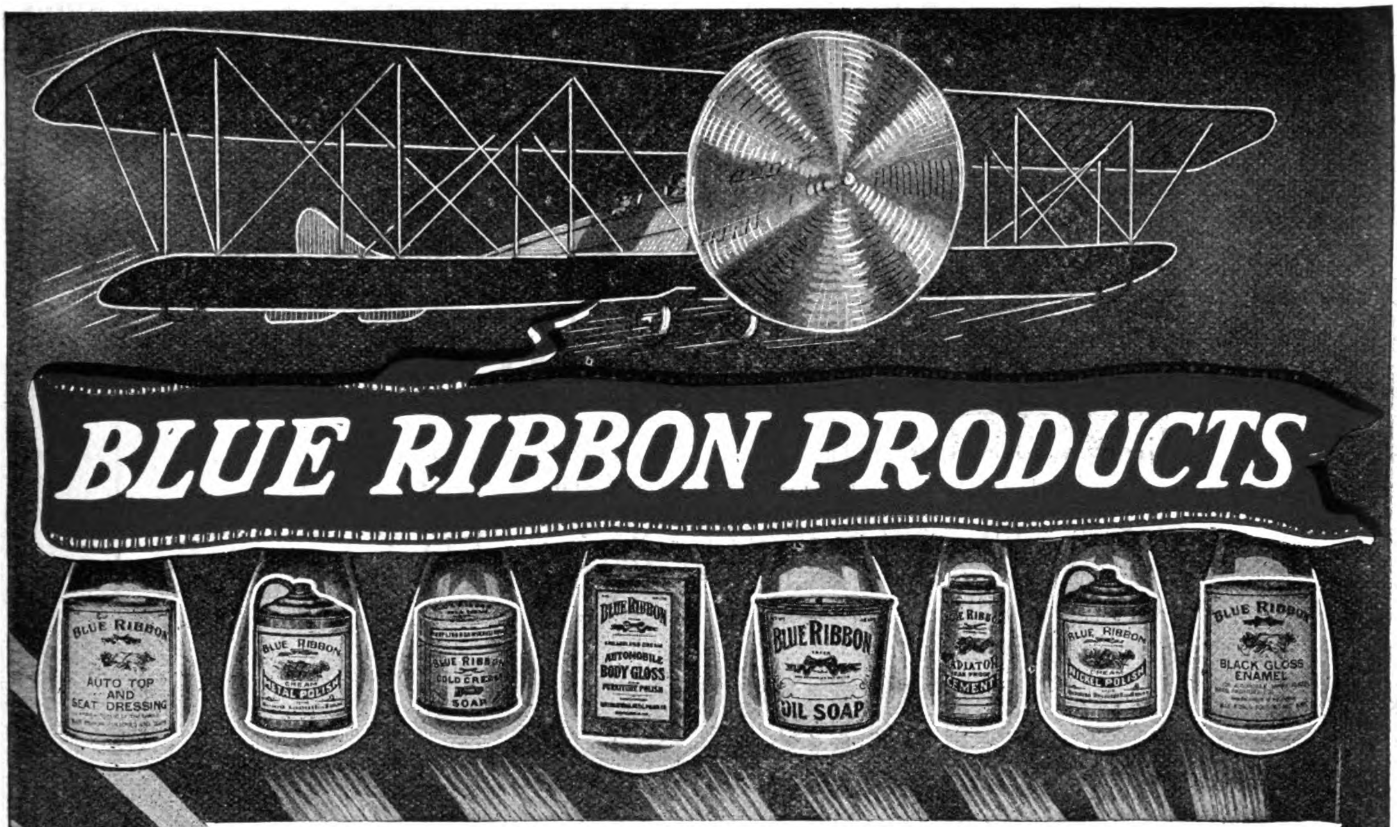
No Garage Can Afford To Be Without One.

At your dealer's, or



Price in U. S. A.
$1.50

A. SCHRADER'S SON, Inc., 800 Atlantic Ave., Brooklyn, N. Y.


Blue Ribbon
Auto Top and Seat Dressing
Blue Ribbon
Cream Metal Polish
Blue Ribbon
Cold Cream Soap
Blue Ribbon
Automobile Body Gloss
Blue Ribbon
Oil Soap
Blue Ribbon
Radiator Cement
Blue Ribbon
Cream Nickel Polish
Blue Ribbon
Black Gloss Enamel

BLUE RIBBON PRODUCTS

Are a Standard Line

Jobbers and Dealers stock the full Blue Ribbon line as they do all other tried, proven and constantly selling goods.

Blue Ribbon products are made by specialists who depend wholly on the quality and service giving satisfaction afforded by lines bearing their trade mark.

There can be no experimentation at the expense of the consumer, dealer or jobber. All Blue Ribbon Specialties must be as good as they are practical in every day use as it is possible to make them.

A nation wide trade, enormous expenditures devoted to development and promotion work as well as the maintenance and operation of the largest plant of the kind in America is too great a stake to gamble against quality.

Blue Ribbon Products today stand supreme. They are passed over the counters backed by an unqualified guarantee on the part of the trade that can leave no doubt as to their merits.

That is why Blue Ribbon Products are a standard line and will always continue to be so.

That is why all jobbers and dealers sell and list them in their catalogues.

Above all else that is why the consumer buys Blue Ribbon trade marked products. Blue Ribbon Products cost no more than others, yet represent the most profitable line that can be placed by the jobber or dealer.

If the **BLUE RIBBON** trade mark is to be seen on your shelves or counter you have a silent salesman in your store that is always working, always earning.

All Blue Ribbon Specialties are sold in quantities to meet any requirement.

The full line affords a complete line and it pays to specialize in known quality goods.

Blue Ribbon Specialties Include:

Blue Ribbon Cold Cream Hand Soap
Contains no pumice or sand.

Blue Ribbon Leak Proof Cement
A permanent radiator cement.

Blue Ribbon Nickel Polish
For nickel parts and trimmings.

Blue Ribbon Auto Body Gloss
For automobile or furniture.

Blue Ribbon Lightning Carbon Remover
Quick and positive in action.

Blue Ribbon Black Enamel
For lamps, hoods, radiators and metal parts

Blue Ribbon Auto Top and Seat Dressing
A waterproof dressing that restores tops and seats.

Blue Ribbon Hand-On Patch
A self-vulcanizing patch for shoes and tubes that never fails.

Blue Ribbon Cream Metal Polish
For any metal. An easy, quick working, satisfactory polish.

Blue Ribbon Oil Soap
A pure vegetable oil soap for any purpose. All quality and efficient.

This is the time to consider your winter and spring requirements

Jobbers and Dealers: Prices and discounts at request.

Blue Ribbon
Liquid Radiator Cement
Blue Ribbon
Hand on Patch
Blue Ribbon
Lightning Carbon Remover

International Metal Polish Co.

INDIANAPOLIS, INDIANA.

DU PONT AMERICAN INDUSTRIES

PONTOKLENE

Cash In On The Tar Season

There will be more freshly tarred roads—the bane of every motorist—in 1919 than ever before. With resumption of state and national highway construction four ordinary seasons of road building and repairing will be crowded into one.

The demand for

PONTOKLENE

TAR and GREASE REMOVER and CLEANER

the tar remover without a rival will break all records.

Our extensive national advertising and our free sample distribution through dealers means increased sales and profits for every Pontoklene dealer.

Are you prepared to cash in on this opportunity? Write our nearest office for free sample and the details of our liberal dealer's proposition.

The tar season will soon be here. Do not delay. Write today.

DU PONT CHEMICAL WORKS

Owned and operated by E. I. du Pont de Nemours & Co.

WILMINGTON, DELAWARE

BRANCH OFFICES:

San Francisco
830 Mission Street

Chicago
McCormick Bldg.

Columbus
4th and Long Sts.

New York
120 Broadway

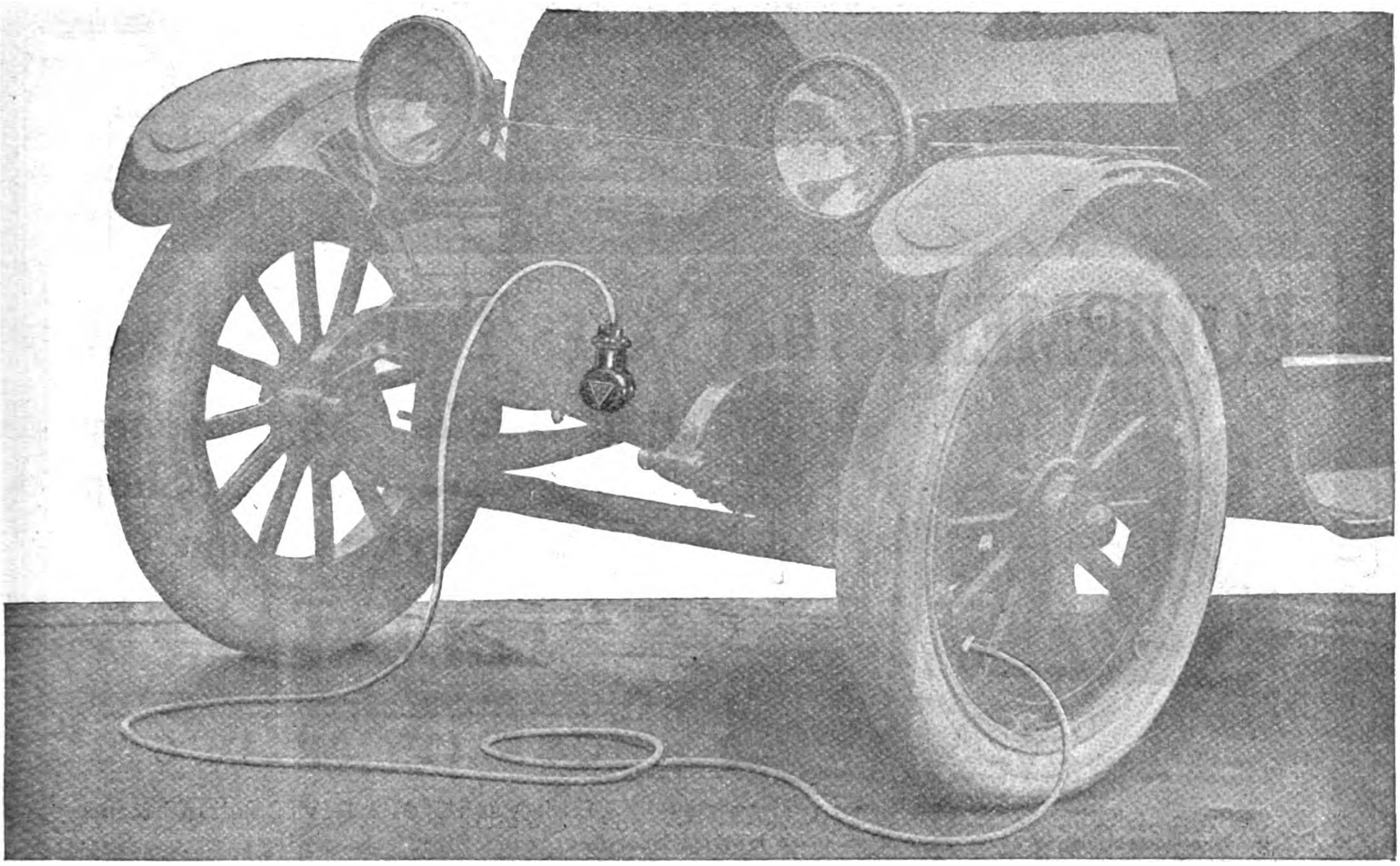
Boston
Harvey Bldg., Chauncey and Bedford Sts.

PRINCIPAL DU PONT PRODUCTS

For Information, address Advertising Division, Wilmington, Del.

Chemicals, Lacquers, Enamels, Pigments, Colors in Oil, Dyestuffs, Paints, Varnishes, Stains, Fillers, Pyroxylin Plastics, Leather Substitutes, Cleanable Collars and Cuffs, Explosives.

DU PONT



The Detroit Tire-Pump will operate on a — Dodge — Briscoe — Chandler — Hudson — Overland — Reo — or Studebaker. In ordering specify model number and year in which car was made

DETROIT
CRANK-SHAFT
TIRE-PUMP

Guaranteed for Life

To Accessory Dealers

Just a word—this pump is going to sell big—our advertising campaign is going to make it known to car owners in every nook and corner of the country. We've kept a substantial profit for you, and have built the pump just as good as we knew how. The pump and its price are right—Why not be first in your territory to display and sell it? Get in touch with your jobber immediately.

To Manufacturers

We are one of the largest builders of all styles of power-driven tire-pumps in the country, including transmission-pumps for many of the best-known high-powered, touring cars and trucks. Samples for Standard equipment, blue prints and quotations gladly supplied upon request.

Something new—a mechanically-driven tire pump that is attached at the right place—to the most powerful shaft on any car and built to "stand the gaff"—by an organization that cares.

Every motorist knows that the annoying tire-troubles always happen when he is far from "free air" and all the free air stations in the world won't pump up his tires on a country road.

Therefore the DETROIT CRANKSHAFT TIRE PUMP which goes right into any tool-box—out of the way until needed—but instantly available when trouble comes, appeals to everyone as the one device he cannot get along without.

The price is very low, especially considering that the pump is built for years of service—to last as long as your car—that the mechanical construction is guaranteed and the air pumped by it, because of the way the pump is attached, is and must be absolutely free from oil-contamination.

THE DETROIT ACCESSORIES CORPORATION, DETROIT; *Michigan*

Factory Branch Offices

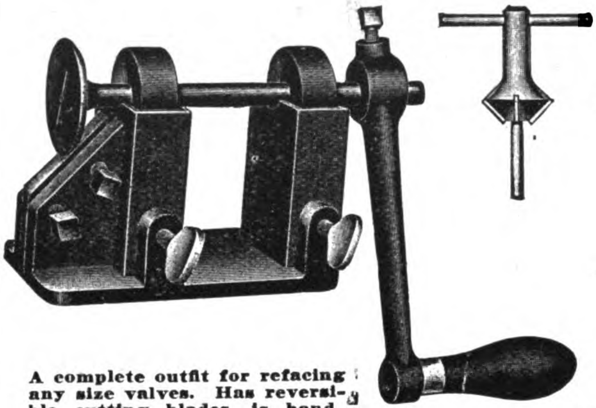
WRIGHT ACCESSORIES CORP.
Atlanta, Ga.

MILLER-CAVE CORP.
122 So. Michigan Ave., Chicago

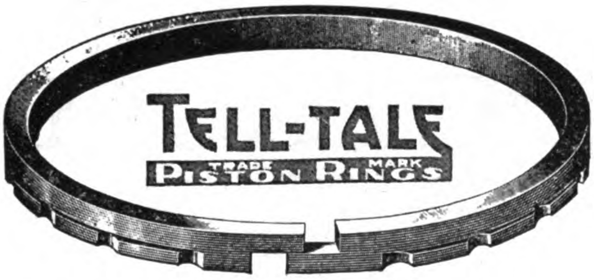
ASCH & CO.
16-24 West 61 Street, New York

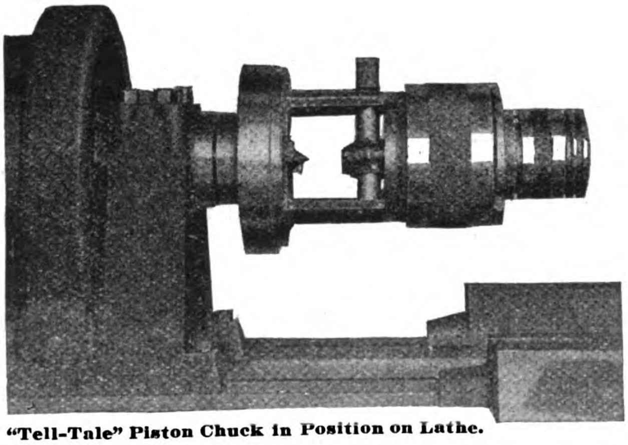
Why Limit Service OR Profit?

EQUIPMENT THAT SAVES TIME AND LABOR



A complete outfit for refacing any size valves. Has reversible cutting blades, is hand-operated, can be used on any work bench; a valve-seating tool that has replacable cutters and will take any size guide stem, suited for every type of standard type poppet valve.





"Tell-Tale" Piston Chuck in Position on Lathe.

JOBBERS AND DEALERS.

The Tell-Tale line is a record business getter. Why not specialize in 100% time and labor saving tools and equipment. It is easy to sell and every Tell-Tale sale represents a big profit to the dealer and satisfaction to the purchaser. They bring business because they are practical tools in any shop wherever auto repair work is done.

Send for catalogue showing our complete line. Trade discount sheets at request.

Will Make Big Money In Any Garage, Repair Shop *Or* Service Station

"TELL-TALE"

QUALITY PRODUCTS

THAT EARN BIG DIVIDENDS because they can be used constantly, that cost comparatively small prices, that afford highest efficiency for years, can be operated by any mechanic and cost practically nothing to maintain.

They are quality products because they are built from the best of materials, are adjustable to all work that may be offered, and all cutting parts can be renewed as desired at small cost.

They are guaranteed as to workmanship, material and utility, and are sold with a guarantee of the greatest satisfaction.

Tell-Tale Piston Rings are made in all standard sizes. They are one-piece, individually cast, step joint, oil cooled piston rings for water cooled or air cooled engines. Recommended by all first-class engineers and mechanics. Write for booklet, TELL-TALE FACTS about piston rings.

The "Tell-Tale" Piston Chuck will take all sizes of pistons without removing the connecting rods from the pistons. It is designed for trueing piston ring grooves, so that over width rings may be fitted. It can be used on any lathe, is easy to operate, simple in construction, cannot fail and will last for years. It will earn its cost in the first two jobs. It can also be used for turning and grooving rough cast pistons.

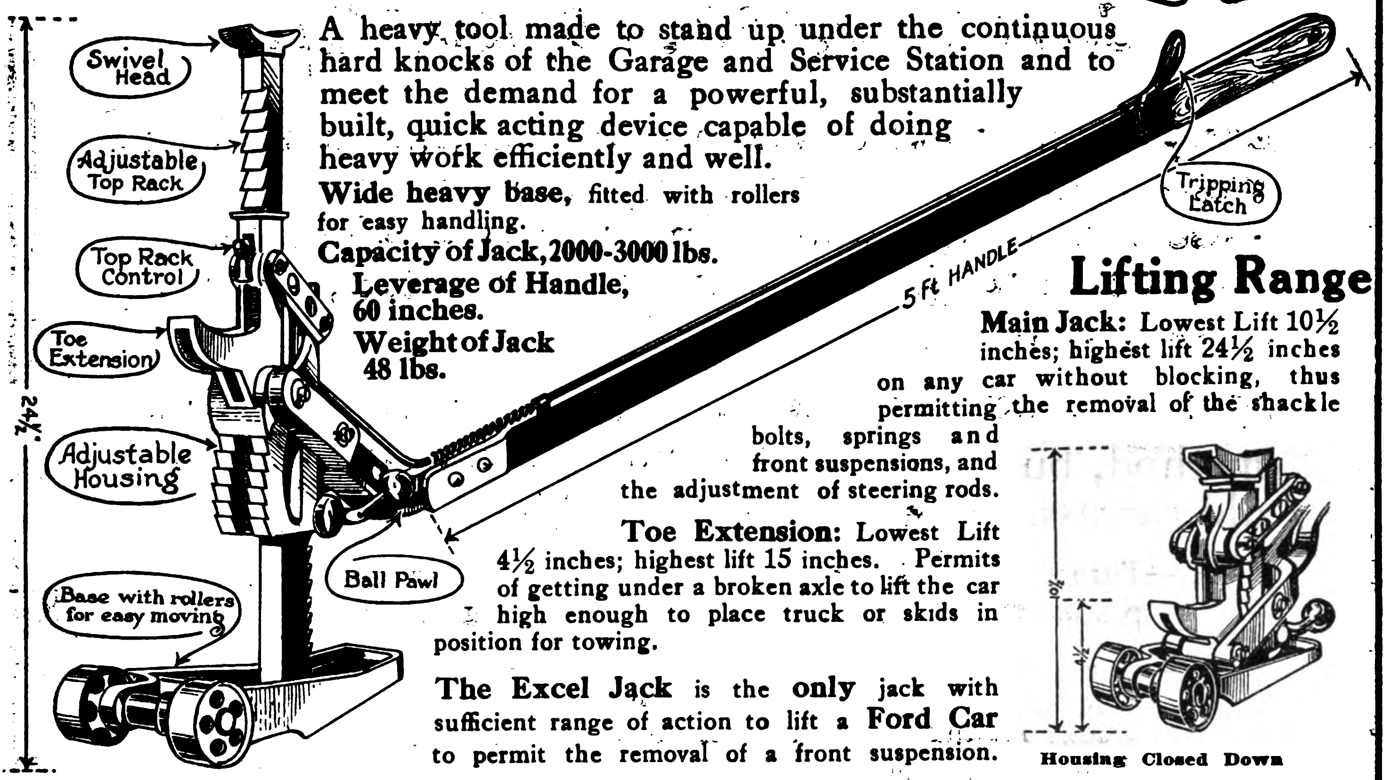
S. D. HARTOG
Manufacturing Co.

2636 LOCUST STREET, ST. LOUIS, MO.,
U. S. A.

EXCEL AUTO JACK

RANFAC
BOSTON — U.S.A.

PATENTED JANUARY 14, 1913—PATENTED SEPTEMBER 8, 1914



A heavy tool made to stand up under the continuous hard knocks of the Garage and Service Station and to meet the demand for a powerful, substantially built, quick acting device capable of doing heavy work efficiently and well.

Wide heavy base, fitted with rollers for easy handling.

Capacity of Jack, 2000-3000 lbs.

Leverage of Handle, 60 inches.

Weight of Jack 48 lbs.

Lifting Range

Main Jack: Lowest Lift 10½ inches; highest lift 24½ inches on any car without blocking, thus permitting the removal of the shackle bolts, springs and front suspensions, and the adjustment of steering rods.

Toe Extension: Lowest Lift 4½ inches; highest lift 15 inches. Permits of getting under a broken axle to lift the car high enough to place truck or skids in position for towing.

The Excel Jack is the **only** jack with sufficient range of action to lift a **Ford Car** to permit the removal of a front suspension.

POSITION

Jack goes into position immediately, under any part of frame or chassis. No stooping nor crawling. No lame back.

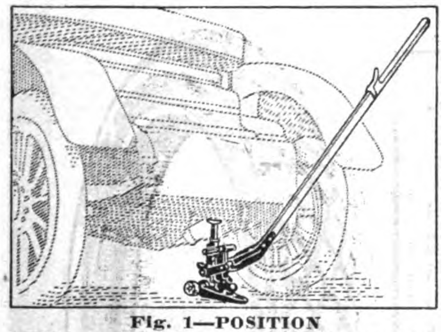


Fig. 1—POSITION

Will reach under bumpers, low gasoline tanks and otherwise inaccessible points without difficulty.

ADJUSTMENT

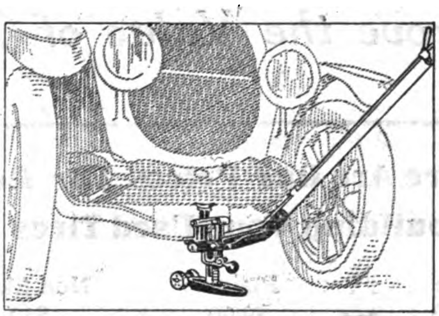


Fig. 2—ADJUSTMENT

One upward motion lifts the swivel head or entire housing into proper adjustment.

LIFTING THE CAR

One downward sweep of the sixty-inch handle lifts the car—instantly.

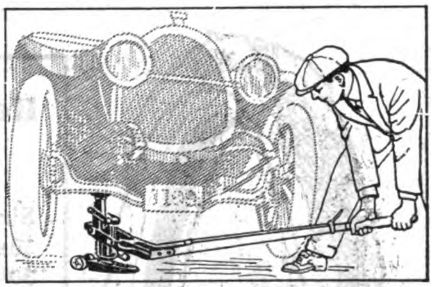


Fig. 3—LIFTING CAR

Then you are ready to work. No loss of time.

Releasing the tripping latch permits lowering of load. Upward kick on ball pawl drops housing and the jack can be withdrawn at once.

Excel Jacks --- Ready To Ship --- In Any Quantity
List Price $25.00

Subject to liberal Trade Discounts. Write for Quotations and Catalog A.

THE RANDALL-FAICHNEY COMPANY, Inc.

Makers of JERICHO AND JUBILEE SIGNALS, B-LINE OIL AND GREASE GUNS, EXCEL AUTO JACKS, VULCANIZER THERMOMETERS, GLAROSCOPES, ETC.

RECONSTRUCTED TIRES

Good for 2,500 to 5,000 Miles

Every motorist who sees his tire wearing away is in constant danger of a puncture or blow-out—will enthuse over our guarantee. Particularly so when it saves half the price of a new tire, this is a fact, and we guarantee it.

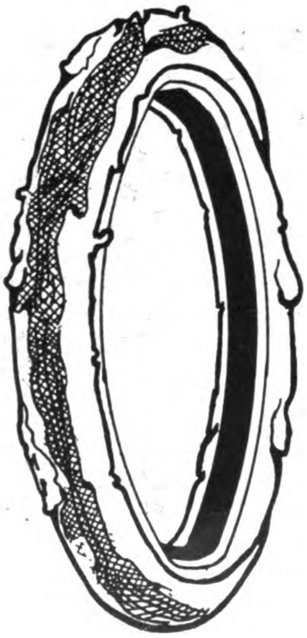
This is a new process, not the ordinary retreading method, but a process that builds a new tire on to the old carcass.—This is what we do:

1.—Turn out an old, worn-out, and useless tire into a new one.

2.—Prevent tread worn, rut worn tires from being utterly ruined.

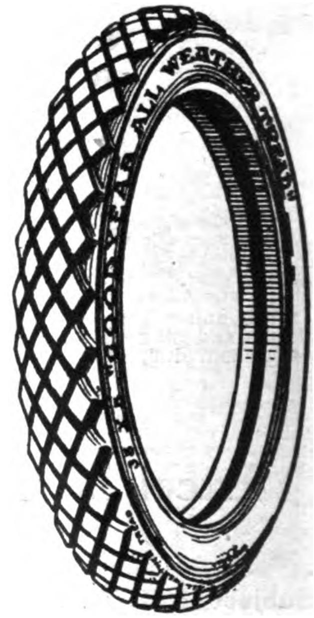
3.—Cover all weak or worn spots, cuts or bruises in the old tire, of which our Reconstructed Tread actually becomes a part, thus doubling the strength of the casing, and making blow-outs almost impossible.

Let Us Prove the Value of This Work



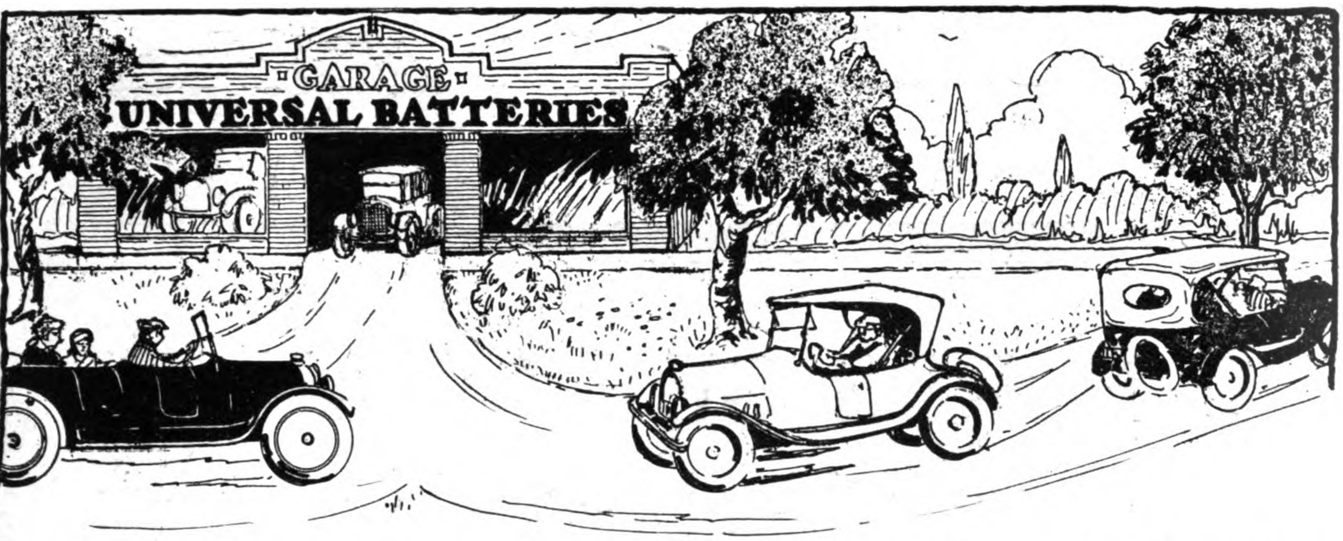
Here Are Our Prices For Rebuilding Your Used Tires

Size	Plain	Non-Skid
30x3	$9.00	$10.20
30x3½	10.20	11.25
32x3½	11.25	12.30
31x4	12.80	14.45
32x4	13.40	14.95
33x4	13.90	15.50
34x4	14.45	16.00
34x4½	17.10	19.75
35x4½	18.20	20.90
36x4½	19.25	22.45
35x5	21.40	24.05
37x5	23.50	26.20



TIRE CONSTRUCTION CO.

129-131 Columbus Ave., Boston, Mass.



Prepare to Repair—

Be prepared to meet the spring and summer demand for auto repairing, accessories and replacement parts. Establish a system which will mean big profits for you and enable you to render prompt, efficient service.

Universal Battery Service

means this complete, comprehensive service. It means the prompt delivery of all replacement and repair parts—plates, terminals, connectors, separators, etc. It means a saving of time, money and trouble for you.

Send Today for Interesting 1919 Catalog.

UNIVERSAL BATTERY COMPANY

3420 SOUTH LA SALLE STREET, CHICAGO, ILLINOIS

Makers of Universal Starting and Lighting Batteries. A complete battery for every popular make of car and a repair part for every standard make of battery. Also manufacturers of vehicle plates and parts for both pleasure and commercial cars.

Big Business, Good Profits and New Customers is Your Ambition

New York Automobile Replacement Coils Have Contributed MORE to This End Than Any Other Line.
Ignition Coils Are Not an Accessory—They Must Be Procured IMMEDIATELY to Keep the Car Going.

NEW YORK COIL CO.
NEW YORK U.S.A.

TYPE D

Unless you are already handling our Replacement Coils and Resistance Units you cannot possibly believe the **tremendous existing demand.**

Ninety-five per cent. of all cars in use are Coil equipped—every one a prospect. This line does not require a large investment. A few dollars will start you, because a small quantity of different model coils fit all cars.

Fifteen years' coil building experience enables us to produce a coil that gives a crashing big hot spark—even when battery is low—that insures easy starting and perfect running on present day low grade gas.

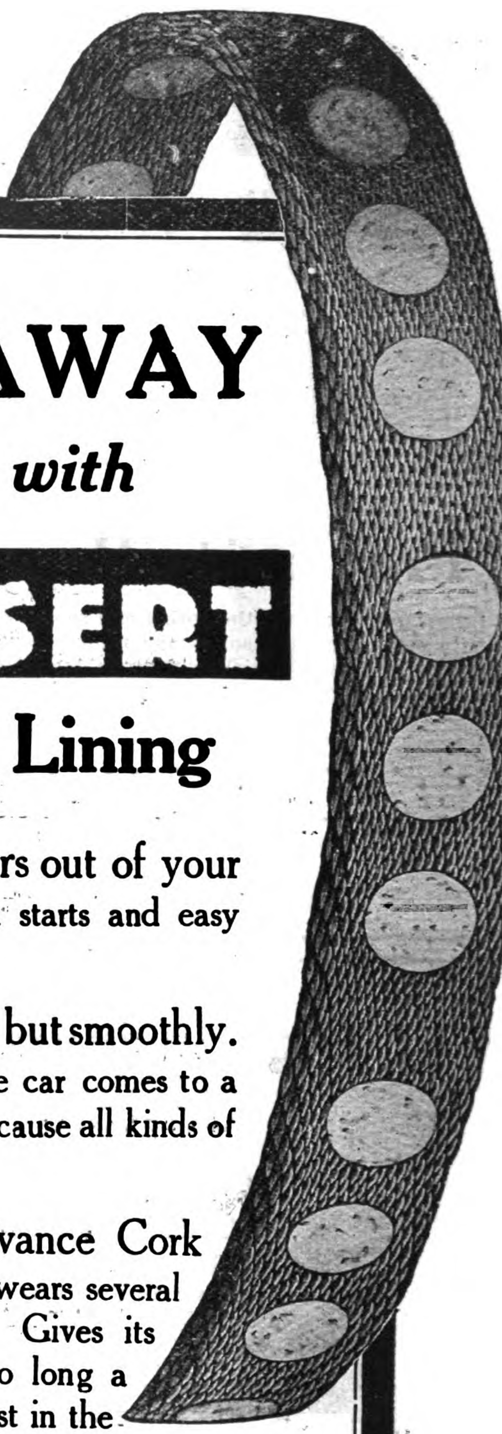
They are guaranteed for the life of the car. Don't let your competitor get the nicest piece of business ever offered **but write today for** trade prices and circular giving list of proper coil for each model car.

NEW YORK COIL CO.
NEW YORK U.S.A.

TYPE A

NEW YORK COIL COMPANY

338 Pearl Street, New York, N. Y.



FORDS GET-AWAY

smooth and quiet with

CORK ADVANCE INSERT

Transmission-Brake Lining

Advance Cork Insert takes the shivers out of your Ford. Driving becomes a series of smooth starts and easy stops.

Advance Cork Insert takes hold firmly but smoothly. Little pressure is needed on the pedals. The car comes to a graceful stop, without the jerks and jolts that cause all kinds of damage to your disposition and the car.

Another big smile in Advance Cork Insert is its economy. It outwears several sets of ordinary linings. Gives its wonderful service for so long a time that it's cheapest in the long run.

Sold in this red and black box

$3.00 PER SET of 3
ADVANCE
CORK INSERT
TRANSMISSION LININGS FOR FORDS
"One Set Will Outwear-3 of Any Other Kind"
"Makes A Great Car Greater"

$3 per set of three.
Rockies West, $3.25
Canadian, $4.50

Be sure—next time you get your brake fixed—to have the garage or repairman put on Advance Cork Insert. He has it or can easily get it. Sold by dealers everywhere. Carried by all wholesale houses. It is sold only in the red and black box with the name on it: "Advance Cork Insert."

Advance Automobile Accessories Corporation
Dept. D-3, 56 E. Randolph Street, Chicago

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. PAWTUCKET, R. I., APRIL, 1919 No. 12

DEALERS PLAN CAMPAIGN TO HAVE MOTOR VEHICLES RECLASSIFIED AS ESSENTIAL INSTEAD OF LUXURY

Designation as "Pleasure Car" Has Cost Dealers Millions of Dollars—Seek Elimination of Tax—Support of Townsend Bill, Uniformity of State Legislation and Stabilization of Truck Market Are Among Other Propositions to Be Considered Soon.

THAT the automobile is an essential and not a luxury will be the contention of the National Automobile Dealers' Association when it wages a determined fight in the next Congress to obtain a reclassification which will put the motor vehicle on a definite essential rating.

The executive committee has outlined four definite propositions that it will work for during the coming months by active campaigns:

First—Classification of the automobile as an essential and not a luxury and the consequent elimination of the five per cent. luxury tax upon automobiles.

Second—Support for the Townsend bill for a national highway commission and system.

Thirdly—Uniformity of state legislation.

Fourth—Stabilization of the truck market.

The executive committee recently met at St. Louis. Those present were President F. W. A. Vesper, Business Manager Harry G. Moock, W. J. Brace of Kansas City and P. E. Chamberlain of Denver.

Vicious Legislation.

"Legislatures were burdened down this year with vicious anti-automobile legislation," Mr. Moock told the executive committee. "We spent virtually half of our time with legislatures opposing measures of this sort after they were introduced. Next time we propose to beat them to it. We are going to give legislators what we consider a fair and equitable motor bill and we're going to fight for it as well as against those other measures. If need be we will load the capitals down with automobile dealers fighting for their rights."

Going to Washington.

In respect to the truck situation the Townsend bill and the repeal of the classification of the automobile as a luxury, Moock announces that a special committee would be appointed, comprising dealers in every section, to go to Washington as a delegation and take up the three matters together, providing the truck situation had not been settled by that time.

COST TO DEALERS.

The burdensome taxes laid upon the trade are the outgrowth of the belief that the automobile represents luxury. The "pleasure car" designation has cost the dealers millions of dollars.

The executive committee decided that in view of the unsettled condition of the truck market that a resolution should be presented to the War Department and the secretary of war, asking for an authoritative statement concerning the disposition of government trucks.

Concerning uniform state laws, Manager Moock was instructed to go ahead with his program as outlined, which contemplates furnishing the legislatures of the several states that meet next year a draft of a model automobile law, which would include adequate provisions for licensing and regulation, taxation, mortgage recording, mechanics' lien, liability, protection for sales and conditional vendors, headlight regulation, speed laws and the like.

Ask Revision.

Regarding the classification of the automobile, the association takes the stand that if the next Congress should appeal the 1918 revenue act as it concerns "semi-luxuries," so-called in the bill, such as clothing, shirts and shoes, now taxed 10 per cent., it should also revise its classification and eliminate its tax on automobile vehicles.

Executive committee meetings will be held quarterly regularly henceforth. The next meeting will be with the board of directors of the N. A. D. A. at Indianapolis the week of the Indianapolis races.

Manager Moock stated that 75 per cent. of the members whose memberships expired this year had renewed. In addition three traveling field secretaries are in the field, in Seattle, New York and Texas, and are sending in applications daily.

Virtually 5000 copies of the Townsend bill have been mailed to members.

An increase has been made in the association's office force to handle the growing problems of the organization.

Car Shortage Hits Dealers Throughout Country

DEALERS throughout the country corroborate, without reservation, the finding made by the National Association of Manufacturers in its post-armistice industrial survey that the automobile business is good. It is so good, in fact, that the trade is inclined to be gloomy; the dealers have sold about everything in the way of a car that they can get their hands upon and they grieve because they cannot make the deliveries desired.

The wail of the dealers today is for more cars. They have had their allotments, have sold them and are seeking others. Several have visited the factory cities, aiming to persuade the sales managers to let them have a few more cars. These dealers have had little luck, as they were told that the demand is great everywhere. The greatest encouragement that most of them received was that the factories are rushing production and that cars will come along faster and in greater numbers next month than they have so far this spring.

The only consolation for the dealers is that they are pretty much in the same fix, so that a customer who fails to secure his first choice of car quickly is likely to have as much trouble in his second and third choice, and, when he has made the rounds, he may wait in order to get the car he wants.

All Classes Sell Well.

It doesn't seem to make any difference what the price of the car may be, there is an equally strong demand for it. High priced cars are selling readily, medium priced cars are far behind orders and low priced cars, though produced in large quantities, are in demand in numbers that far over-reaches the production. It is harvest time for the dealer who has a car that is less well known than some others, for he is getting customers from among those who cannot wait, but must have a car right away.

The used car market also has felt the impetus and dealers are exhibiting with much satisfaction the reports of their used car departments, which show that the stocks are exceptionally low. Comparatively few used cars were turned in last autumn because owners feared that they would not be able to obtain new ones and decided to keep what they had. And the used cars that have come in this spring have been taken up readily at good prices.

Truck Market Satisfactory.

Despite the tremendous sales of trucks that were made last year, when the war activities made highway transportation essential for the prompt handling of goods, there is a surprisingly good demand for trucks this spring. There is not as much buying of the largest types of these vehicles as there was a year ago, but motorization of all sorts of businesses is making a brisk market for the medium sized and small trucks. Farmers are coming into the market more than ever before and smaller manufacturing enterprises and businesses are following the example of the larger in taking up the quick, economical motor transportation. Trucks are in better supply than the passenger cars and consequently more prompt deliveries are possible.

The motor trade does not expect present conditions to last very long and the dealers, consequently, are not relaxing their efforts to enlarge their list of prospective customers. In another month the height of the spring rush will have passed and at the same time the supply from the factories will have increased.

New Cars Coming.

New cars are coming upon the market from new concerns, and the older manufacturers are planning to put out new models, the bulk of them designed to appeal to the purchaser of the medium and low priced classes of car. By next fall, unless all present indications are misleading, there will be plenty of motor cars and trucks to sell. Dealers, knowing this to be the case, are making their plans accordingly. They are strengthening their sales forces, though at present salesmen have little to do, and they are looking ahead to the time which is surely coming in another six months, when motor cars will have to be sold under highly competitive conditions.

GMC OPTIMISTIC.

The great confidence of the General Motors Corporation in the future of the automobile industry is indicated by its announcement that it will spend $37,398,000 for new construction projects.

Meanwhile the industry is being kept stirred up by the rumors and combinations of manufacturing interests and new projects on a big scale which indicate that it is rapidly getting back into normal condition and that the tendency toward consolidation that was going on before the war is receiving renewed impetus.

British Competition.

Henry Ford has been in conference with Sir Percival Perry, managing director of the Ford Motor Co., Ltd., at Detroit, in regard to the question of whether the export trade will be handled from New York direct or from the United Kingdom. The strides that the Ford company is making in the matter of capturing the export trade may be indicated somewhat by the statement that sales in Argentine increased 1000 per cent. during the last year.

British manufacturers are beginning to fight for their share of future business. In view of the fact that Australia and New Zealand have recently been large buyers of American cars, the exports to Australia for 1918 being 3826 passenger automobiles and 1418 to New Zealand, it may be interesting to American manufacturers to note that the English Department of Overseas Trade and the Association of British Motor and Allied Manufacturers decided to send an investigator to Australia, New Zealand, India and the Far East to ascertain the conditions and prospects in the territories for the sale of British motor vehicles, their parts and accessories.

Announcement that all blacklists are to be abandoned has cheered the export men in this country. By some it is argued that this is simply the forerunner of a complete suspension of all embargoes on enemy countries. By the stock market the action has been accepted as one more move toward that oft-spoken-of and never definitely defined period commonly referred to as "normal."

Maxwell-Chalmers Merger.

Automobile makers were greatly interested in the announcement that a consolidation of the Maxwell Motor Car Co. and the Chalmers Motor Corporation is being considered by the board of directors of the two companies. Elton Parks, a director of the Maxwell company, has issued this statement:

"Rumor is current and has been given publicity in the press, that the Maxwell-Chalmers companies are to combine their interests into a new company to be formed for that purpose. It is true that the respective boards of directors of the companies view favorably a combination of their interests and those in control of affairs of both companies have been working for that end, but the matter had not yet progressed sufficiently to make announcement of the details of the plan, which in the last analysis must be referred to the respective stockholders and accepted by them before it can become operative."

Detroit Needs Labor.

The vast production going on in the automobile plants is reflected by a call sent out by the Board of Commerce of Detroit for demobilized soldiers to go to that city. With the large automobile manufacturing concerns advertising in the larger eastern cities for labor to man their plants in Detroit, Pontiac and elsewhere in Michigan, and other industries combing the city for common laborers, the labor situation is serious.

It is impossible to get men enough to supply the demand in Detroit. Flint, where the General Motors Co. has made plans for building 1000 homes for working men, is declared to be particularly short of labor, and all classes of workers are wanted at the Chevrolet plant.

Some weeks ago the Board of Commerce sent out notices warning returned soldiers of a scarcity of jobs in Detroit. The conditions are now reversed.

More than 15,000 Willys Overland Co. employees have received checks aggregating $400,000.

The Detroit Housing Association is completing organization of a separate $1,000,000 corporation to build homes for working men in Detroit at minimum cost.

Seize Fake Army Officer "Selling" U. S. War Cars

UNCLE SAM has run down the "agent" who has been spreading the report that the government proposed to flood the market with cars and trucks bought for war service. This man, dressed as an army officer, and driving a high-powered automobile, went from city to city, telling dealers that the War Department had authorized him to take orders for machines that had been purchased for war use.

His scheme was to get money from the dealers as part payment on cars he promised would be delivered to them, and it is said that he succeeded in getting many thousands of dollars in this way. He was recently arrested at Danbury, Conn., by Army Intelligence Department detectives.

The sleuths evidently regarded him as very dangerous, not only through the harm he was doing the automobile trade in scattering the false rumors, but also physically, as they made the arrest with drawn pistols. He had just come into Danbury and was about to alight in front of a hotel when arrested. A young woman who accompanied him was questioned, but not held.

The Federal officials say they have traced to his operations many of the reports that the government was to sell its cars to the public. These reports, despite repeated denial by the government, have been a thorn in the sides of automobile dealers in all parts of the country.

Many persons who are able to buy a car have been deterred from placing their orders because of expectation that they would be able to buy government automobiles at bargain rates.

In Automobile Business.

The man arrested in Danbury was dressed in the uniform of a lieutenant colonel of the United States Army. He is 31 years old and lives in Jersey City, where he was in the automobile business prior to his enlistment in the army. He enlisted in the Quartermaster Corps as a private.

Soon after he donned the uniform complaints began to reach the police about his having swindled customers by taking old automobiles in return for new cars, which he never delivered. He was indicted, but when search was made for him in the army it was found that he had been transferred to the Motor Transport Corps and had been promoted to the rank of major.

He was arrested in a camp in the South, returned to Jersey City and lodged in his uniform in the Hudson county jail. He remained there for several weeks, but was released eventually in $5000 bail. When his case was called in the Court of Common Pleas he had disappeared.

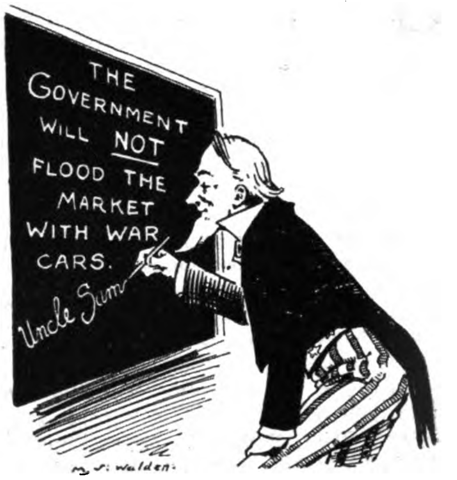
He was arrested in Danbury as a deserter from the army and on an indictment in Jersey City charging him with defrauding 30 prominent men of that city of sums aggregating $30,000. But the government was more anxious to apprehend him because he was believed to be the alleged army officer who has been going about the country in an automobile informing dealers that the War Department had commissioned him to dispose of several thousand automobiles purchased for the use of the army during hostilities.

Gets Publictiy.

They explained that the alleged officer spreading that report had succeeded in obtaining considerable publicity of the fact in newspapers in various parts of the country, and that he also had sold many automobiles, which later were discovered to have been stolen from other cities.

The belief of the public in the false reports of the sale of army cars is indicated by the following article published in a Boston newspaper:

"Capt. James H. Brown, motor transport chief for this army district, wants the public to know that the army has no autos for sale. He says that every minute of the day he gets letters, telephone calls or has visitors looking for a bargain in autos, and many insist, even after he tells them none are for sale, that he really has some. If the army disposes of any of the machines now in use it will be, he said, by the regular method of advertising, inspection and sealed bids."


THE GOVERNMENT WILL NOT FLOOD THE MARKET WITH WAR CARS.
Uncle Sam
M. J. Walden

In addition to the requests that have come to the army officers located in the various districts throughout the country, a vast number have reached Washington. In fact, there has been a veritable flood of these to the War Department officials there.

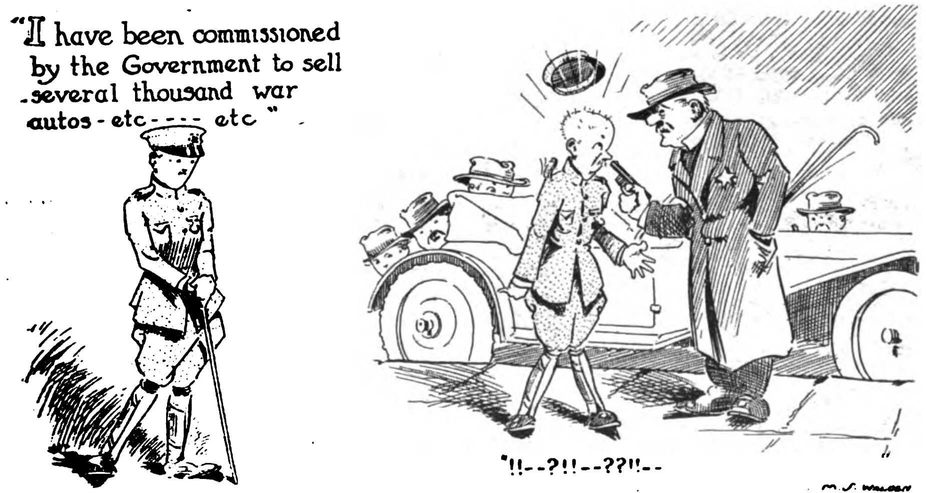
No. U. S. Cars Sold.

So far no such property has been sold. If any is sold it will be surplus stock for which there is no further public use. This cannot be known until inventories and government department requisitions are completed. It is a case of the government eating its own apple, of which it seems likely "there ain't going to be no core." What is left will be offered first to original manufacturers for disposal through the automobile trade in the hope that the government will receive a fair price without disrupting the industry. This will be disappointing news to the thousands of patriots who are offering to pay as much as 20 per cent. or less of the value for the best makes "if in good order."

It is to avoid such scandals as attended private disposal of property to favored buyers after the Civil and Spanish wars that extraordinary care is now taken in marketing the unprecedented surplus stocks of all kinds in the hands of the War Department. And another danger has to be guarded against. These stocks in many lines—such as machinery, tools, textiles, building materials, chemicals, raw products and various other things—are so great that to throw them on the market would seriously depress prices and disturb trade.

Motor vehicles bought by the government amounted to a comparatively insignificant item in the bill of war purchases. Yet popular interest in the disposal of these vehicles is immensely keener than in all the other things combined.

However, no car that will run has been sold or will be sold until all the government department needs have been satisfied. And the outlook is there will not be nearly enough to go around.


"I have been commissioned by the Government to sell several thousand war autos - etc---- etc"
"!!--?!!--??!!--
M. J. Walden

GMC PLANS $37,000,000 EXPANSION

OPTIMISM in the future of the tractor and other automotive industries has been elevated to a high level by the announcement by the General Motors Corporation that it has authorized for plant extensions and for new construction projects, to be completed during the present fiscal year, expenditures of $37,398,000.

To take care of the immense growth in sales of agricultural machinery and of tractors, twin acquisitions of General Motors for the past two years, new plants for the Janesville Machine Co. and for the Samson Tractor Co. will be built at Janesville, Wis.

The distribution of the vast expenditures will be as follows: Detroit, $12,650,000; Flint, Mich., $6,715,000; Pontiac, Mich., $2,150,000; Lansing, Mich., $2,450,000; Saginaw, Mich., $2,427,000; Toledo, O., $543,000; St. Louis, Mo., $4,135,000; Bristol, Conn., $1,028,000; Janesville, Wis., $4,500,000; Muncie, Ind., $800,000.

This is the General Motors Corporation's decisive answer to nervous folk in the world of industry and finance who have "been waiting developments" of post-war conditions before mapping out their industrial and financial plans for the ensuing year.

"Everybody has been waiting to see what the other fellow was going to do," said W. C. Durant, president and general manager of the General Motors Corporation, as he made the announcement.

"This is what General Motors is going to do.

"The investment of these large amounts again emphasizes and confirms its judgment in the underlying stability of the country, and in the soundness of the automobile industry."

In the $12,650,000 allotment to Detroit is included an item of more than $5,000,000 for a 15-story general office building with a research laboratory, four stories in the rear. Mr. Durant authorized announcement that the General Motors Corporation would also expend approximately $6,000,000 in Walkerville, Ont.

Detroit's $12,650,000 share comprises a new plant for the Cadillac Motor Car Co. division, sales and service building for the Cadillac; a differential gear and transmission plant, general heating and power plant; extension to the Central Forge Co. and the Northway Motor and Manufacturing plant, and the office building and research laboratory.

The office building will contain an auditorium seating approximately 1000.

Walter P. Chrysler, president and general manager of the Buick Motor Car Co., has been appointed vice president in charge of all General Motors operations and assistant to the president.

The strong central operating organization, headed by Mr. Chrysler, will direct in a central way the carrying out of the policies of the corporation.

Mr. Chrysler will continue as president of the Buick company. He will be succeeded as general manager of the Buick company by Harry H. Bassett, assistant general manager of the plant for several years.

Big extensions to the Buick and Chevrolet plants and the erection of 1000 model homes are planned for Flint. The rapidly growing Oakland plant at Pontiac will be enlarged and new homes erected there. In addition to the erection of a new axle plant at Lansing an extension will be made to the Olds Motor Works. At Saginaw there will be important foundry extensions and a new heating and power plant.

In St. Louis there is an interesting development. The Buick company, heretofore confined to Flint, is to have a new assembling plant in accordance with plans which call for an output in 1920 or 1921 of 300,000 cars. Chevrolet is to have another assembling plant and a big new wood working plant for the General Motors organization is to be erected in St. Louis, the natural center on account of its accessibility to the lumber district.

Under Mr. Chrysler's management the Buick output has been expanded from 36,000 cars in 1913 to 140,000 cars per annum. It is understood that the new arrangements involve no material change in the policy of the independent management of the General Motors extraordinary development. A strong central operating organization, headed by W. P. Chrysler, will simply direct in a general way the carrying out of broad policies.

SPACKE $295 ROADSTER READY IN JULY.

The Spacke Machine and Tool Co., Indianapolis, Ind., plans to begin making deliveries of its car to sell at $295 f. o. b. factory about July 1. The marketing of the entire output will be by A. B. Norwalk & Co., Inc., Times building, New York. The car is a two-passenger roadster with racing type bucket seats, a wheelbase of 90 inches and demountable wire wheels with 28 by 3-inch tires, and weighs 700 pounds. It is credited with a speed of 35 miles an hour and from 40 to 50 miles on a gallon of gas.

The engine is the Spacke de Luxe, 9-13 horsepower, with two air-cooled cylinders. The engine and axle are equipped with ball bearings. Drive is through a two-speed and reverse planetary gear, propeller shaft and universal joint to the one-piece bevel gear driven rear axle. No differential is used.

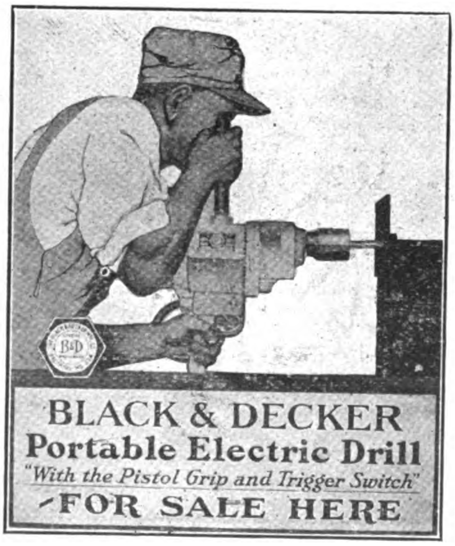
The frame is of pressed channel steel. The car has fenders, running boards and electric lights. The color is battleship gray. An output of 1000 a month is planned.

TO HANDLE NEW AND USED CARS.

The Saxsix Sales Co., Inc., Brooklyn, N. Y., to deal in new and second hand automobiles, has been incorporated with $10,000 capitalization by F. J. Balmer, J. J. and L. J. Robinson, 464 Eastern Parkway, Brooklyn.

BLACK & DECKER WINDOW DISPLAY PLAN.

The accompanying illustration is that of a window display of the Black & Decker Manufacturing Co., Baltimore, Md. The merchandising plan of the company, which builds portable electric drills, lectroflater electric air compressors and electric valve grinders, is distributed through jobbers and dealers. Its advertising campaign is laid out on the premise that its own success and that of its jobbers is irrevocably linked together. This being the case, it is obvious that the company's chief advertising effort must be to promote the sale of the products to the ultimate users.



To a certain extent the company advertises to the jobber in order to keep its name before him, but the principal effort is devoted to helping him turn over the company's goods. An extensive direct circularizing campaign is conducted, the jobbers being urged to supplement this with literature supplied them, imprinted with their names. New sales helps are constantly developed to aid the jobbers. A concrete example of this is the colored life size window display.

This card is supplied to jobbers and dealers handling the company's drills and considerable pains were taken with this display to make it life like and attractive.

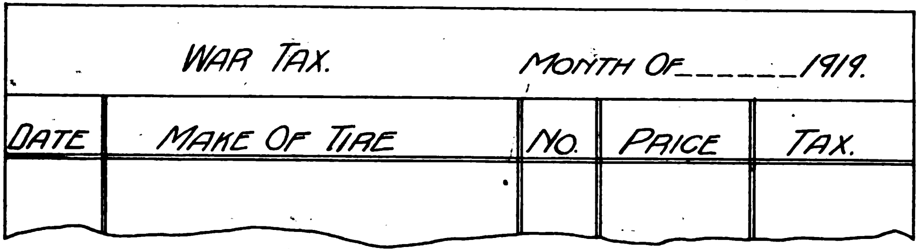
In most cases the company's representatives deliver these window displays personally and give the jobbers the benefit of their experience in laying out his window display effectively. While the use of window displays is a standard practise in connection with the merchandising of goods, it is rather an innovation in connection with the sale of high class machine tools.

AUTO SUPPLY AND GARAGE CO.

The Atlanta Auto Supply and Garage Co., to deal in and with automobiles and accessories, has been incorporated in Delaware by Harry Brosgal, Edward G. Cook and George L. Townsend, Wilmington, Del., with $20,000 capitalization.

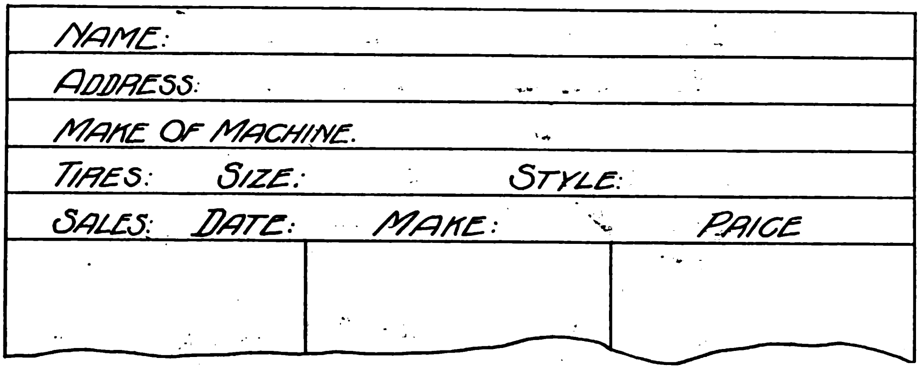
Records That Make Selling Easy

By Walter Engard.



WAR TAX. MONTH OF______1919.

DATE	MAKE OF TIRE	NO.	PRICE	TAX.



NAME:
ADDRESS:
MAKE OF MACHINE.
TIRES: SIZE: STYLE:
SALES:

DATE:	MAKE:	PRICE

A SIMPLE and successful system for compiling information and records with which the dealer can push sales more effectively and more economically is explained in the following:

Every tire in the shop is marked with a price ticket upon which is entered the make of tire, size, style, price and amount of war tax. This ticket also has space for entering the name and address of the purchaser of the tire and the make of his machine.

When a customer buys a tire the salesman removes the ticket and enters the name and address of the purchaser and the make of machine. This ticket serves as a sales slip, and no other slip is made out. This ticket is deposited in the register along with the money, and at the close of the day the dealer removes these tickets, taking them to the office.

In the office he has provided an index card filing cabinet equipped with 20 drawers for filing three by five-inch cards, all of which have A to Z guides. On the front of each drawers is a brass label holder in which a card may be inserted showing the contents of that particular drawer.

For recording the information taken from the price tags he has provided three by five-inch cards, like that shown in the accompanying illustration. These serve as a permanent record of every tire sale. Upon each card is entered the name and address of the customer, the make of machine, the size and type of tires used. There is a space for entering each sale made to this customer. As soon as this information has been transferred from the price ticket to one of these cards it is filed in the index file according to the size of the tire.

A space has been reserved in these files for all sizes of tires from 28 by 3 inches to 38 by 5½ inches. In the case of the more generally used sizes a whole drawer may be given over to each size, while in other instances down to two or three sizes, as the 38 by 5½, 37 by 5½ and 36 by 5½ cards, may be filed in one drawer. Sizes, such as 31 by 4, 30 by 3½ and 31 by 3½, etc., for which there is a general demand, require more space owing to a larger number of customers for these sizes.

Now when this dealer wishes to push the sale of any certain size tire he goes to his index files and there finds the records of the users of that particular size. For instance, he may find that he is overloaded on tires 36 by 4½ and he wishes to stimulate the sales of this particular size. He takes the file in which are all cards bearing the names and addresses of users of this size tire and he mails his advertising direct to them.

Through this system he does not have to mail his advertising matter to every name on his mailing list in order to get his advertisement in the hands of the particular users he wishes to reach. This system of records saves him hundreds of dollars in postage alone, to say nothing of the increased effectiveness of his advertising.

By watching his records he can estimate fairly accurately just about the time the customer should be in the market for new tires, and by going over his lists when business is quiet he gets out advertising matter to these particular customers. He also knows when a customer must be buying his tires elsewhere and can get in touch with him immediately and find out what the trouble may be.

Usually when a customer feels that his trade is being missed enough to get a friendly letter asking what the matter may be he comes back. It may be that he has wandered off because he was offered a small rebate by some other dealer, or he may have been induced to buy a cheaper tire. No matter what the cause his diversion of custom he feels that this merchant must appreciate his business or he would not be inquiring into his reason for going elsewhere.

By having the name of the make of machine of each customer this dealer is also able to exploit the sale of some particular accessory for that make of machine. For instance, he may wish to push the sale of hood covers for a Buick Six. By going through his index files he can sort out all the names of owners of Buick Sixes and mail his advertising matter direct to them and cut out all waste and lost motion.

This dealer always has on hand a good supply of advertising matter furnished him by the manufacturers of the various tires and accessories and never allows a piece of mailing matter to go out of his store without at least one of these booklets or leaflets inserted, upon which he has his name and address stamped. He states he considers this material very valuable to him and that most merchants do not appreciate the real advertising value of it.

This dealer also has a special form upon which he keeps an accurate account of all war tax collected on the sale of tires. At the close of each day he enters a record of all war tax collected that day from the price tags, entering the date, the make of tire sold, the number, the price and amount of tax. This method facilitates war tax accounting and enables him to keep a correct record of all tax collected. This simplifies making the governmental return.

WHAT TRUCK BUYERS SEEK.

As truck buyers are usually sound business men, the dealer does not have to worry over feminine psychology and other romantic factors that enter into passenger car salesmanship. The truck buyer wants a machine that will be suitable to the needs of his business. If he deals in light trucking he wants light vehicles, and if in heavy trucking he knows he must have heavy trucks. As he realizes that the truck is in itself an advertisement for his business, he wants a vehicle of attractive appearance, but he is not apt to go to extremes in this respect.

The business man looks especially for economy. However, he is not so much interested in the initial price as he is in the cost of maintenance. With the truck operating accounting systems now in vogue, trucks may be operated on a systematic basis, with the accomplishment of the maximum amount of work possible and the elimination of unnecessary expenses.

INDIANAPOLIS ATTRACTS SPEED KINGS

Ralph De Palma.

LOUIS CHEVROLET

RALPH MULFORD

Dario Resta.

THE vitality of the motor car industry and its ability to assimilate war handicaps and come back stronger than ever, is strikingly demonstrated in the interest which race drivers and manufacturers alike, are manifesting in the 500-mile International Sweepstakes to be held on the Indianapolis Motor Speedway, May 31.

Among all industries, that of the automobile was hardest hit by the war. Not only was it denied the privilege of keeping up even a small production, but its man power was depleted almost completely and its factories commandeered down to the last lathe and drill press. All of this, however, was agreeable to the automobile men, for no one can question the whole-hearted devotion and patriotism of the men of motordom as revealed under fire.

The big race scheduled for Indianapolis will, according to present conditions, be the main event in the racing world this season. With no race since 1915, there is no question but what the coming revival of this big automobile classic will see the largest crowd in attendance that has ever attended a race in America.

The purse offered—$50,000—is attractive enough to interest nearly all of the speed kings of the world. In addition to such well known drivers as De Palma, Chevrolet, Resta, Mulford, Hearne, Pullen, Durant, Cooper, Milton, Taylor and others, a number of European drivers are sure to be entered. Jules Goux, who won in 1913, will be a contender for the 1919 honors. The famous racer has served with distinction in the French army and is now ready to try to add to his laurels by winning the Indianapolis event.

Durant to Compete.

Considerable interest centers in the entry of Clifford Durant, because of his victory in the 250-mile San Monica road race March 15 in a Chevrolet Special car. He is a son of W. C. Durant, the head of the General Motors Co., and is manager of the Chevrolet plant at Oakland, Cal.

Ralph De Palma will drive the 12-cylinder Packard that he has used with great success on the speedways. This will be his sixth race at Indianapolis and the third time that he has manned an American made car. In the 1911 event he drove a Simplex to sixth place, in 1913 his Mercer failed early in the race, his only starts with Yankee racers. In the 1912 race his Mercedes faltered with two laps to go to victory, in 1914 his Mercedes did not start, being damaged in qualifying, while in 1915 he scored a victory in the last 500-mile with the Grand Prix Mercedes.

Roscoe Searles, winner of the two 150-mile races of the season on the Ascot Park Speedway, Los Angeles, will not drive his Roamer at Indianapolis. Searles made a hit with Barney Oldfield, who witnessed the last 15-mile race. Oldfield has always been a tire crank. Searles started the last race using retreaded tires and won from a fast field, averaging 71 miles an hour with three stops. Oldfield decided that with good tires and a fast car Searles could beat the crack drivers of the world on a course like the Indianapolis Speedway.

Drives for Oldfield.

Oldfield, who was recently reinstated by the A. A. A. Contest Board, picked Searles to drive his "Golden Submarine" in the $50,000 race, and made a deal whereby Searles will drive the car the entire season.

Dario Resta, who won the only official championship ever awarded in the history of the speed sport in America, will drive a foreign car, but not the French Peugeot that has always carried him to victory. Resta's mount will be the same English Sunbeam that the late Joe Christiaens was to have piloted.

Louis Chevrolet, who has entered a car without a name in the sweepstakes, has the distinction of being one of the few drivers to win a big race on "three legs," or three cylinders. Back in 1909 when Louie was the star of the Buick team, he won the Crown Point, Ind., race for the Cope cup. From the start Chevrolet drove like a wild man and the fans picked him to win. He had a long lead on the field when he was forced into the pits by the smashing of one piston. Nelson, his mechanic, disconnected the rod for the dead cylinder from the crankshaft and persuaded Chevrolet to resume the race. The Franco-Swiss, though unable to approach his average early in the race, had enough margin to go out and win.

Eddie Hearne will drive a Chevrolet Special. Since the Santa Monica race he has overhauled the racer and claims to have put about five miles an hour more under the bonnet.

Speedway History.

Speedway racing was first introduced in America in 1909 by the promotion of the Indianapolis Speedway. The idea originated with Carl G. Fisher, who enlisted as his associates in the venture J. A. Allison, A. C. Newby and F. H. Wheeler, all of Indianapolis. The original track was completed in August, 1909, and the first racing events were held Aug. 19, 20 and 21.

The track was of taroid construction and failed to stand the wear of the speeding race cars. Due to the tremendous speed, great ruts were worn at the turns, which caused many disastrous accidents. The investment of the speedway up to that time had been approximately $500,000.

When the coming Liberty Sweepstakes are held there will be some familiar faces absent. George Boillot, the automobile idol of France, who in 1914 raced as a teammate with Jules Goux, died for France when he was shot through the heart by a Hun machine gun bullet while fighting 10,000 feet in the air. Josef Christiaens, a favorite of Albert, King of the Belgians, died in an accident at Wolverhampton when testing out a car for the Liberty Sweepstakes.

Captain Eddie Rickenbacher, the ace of American aviators, has been urged to compete, but he announced that he had retired from the racing game.

Four Bearings Makers Merged Into S K F Industries.

Of interest to all users of bearings is the just announced combination to become effective May 1 of the Hess-Bright Manufacturing Co., the S K F Ball Bearing Co., the Atlas Ball Co. and the Hubbard Machine Co. The new company, under the name of S K F Industries, Inc., will produce a comprehensive series of ball bearings, including the Hess-Bright deep-groove type, S K F self-aligning radial and thrust bearings and ball bearing pillow blocks and shafting hangers.

Through the medium of its engineering organization, backed up by a well equipped laboratory, the new company will be able to place at the service of bearing users the knowledge gained in many years study of anti-friction bearings of all kinds. On request, manufacturers' problems will be analyzed in detail and that type of bearing recommended which (independent of sales considerations) is best suited to the conditions met. In addition the laboratory staff will carry on research studies affecting anti-friction bearing design and application.

S K F Industries, Inc., is the consummation by physical consolidation of a merger, begun some time ago by the four companies mentioned under the direction of B. G. Pryta, president; W. L. Batt, vice president; J. P. Walsh, comptroller, and S. B. Taylor, sales manager. The principal office will be at 165 Broadway, New York City, with branches at Boston, Philadelphia, Atlanta, Buffalo, Cleveland, Detroit, Cincinnati, Chicago and San Francisco.

CHAMPION SPARK PLUG CO. ASSUMES U. S. TAX.

The Champion Spark Plug Co. was one of the first manufacturers of automotive equipment to go on record as to how it would handle the new revenue of five per cent. levied on all automobile accessories under the Federal Excise Tax Bill. Even before the bill became effective the company sent this wire to its jobbers throughout the United States: "We assume Federal Excise Tax on Champion Spark Plugs from Feb. 25. You need not figure this on sales to your customers."

CHANGES MADE IN HART-PARR CO. STAFF.

Changes have been made in the organization of the Hart-Parr Co., Charles City, Ia. I. C. Wilhite, W. A. Ingalls, W. L. Cramer and A. A. Teal have been added to the sales staff H. H. Boetzer is branch manager at Great Falls, Mon. H. A. Reed directs the road engine department. B. F. Sullivan is organizer of territories. John Bossart is assistant manager at Wichita, Kan. A. W. Sawyer has become advertising manager and W. E. Dodge is in charge of publicity.

MILTON W. FRANKLIN NOW WITH REMY ELECTRIC CO.

Milton W. Franklin, known as a consulting electrical engineer, has been engaged by the Remy Electric Co. and is permanently located at the Remy factory in Anderson, Ind. Mr. Franklin has made valuable contributions to technical publications, especially on the subject of ozone, which are regarded as authoritative and constitute the accepted views at the present time. These have been very widely quoted both in American and European countries.

Milton W. Franklin, Electric Engineer, with Remy Electric Co., Anderson, Ind.

For two years he was professor of radiology at the Polyclinic in New York and director of the Department of Radiology in the New York Health Department. He has been connected with various electrical railway companies, with the General Electric Co. and was president and general manager of the C. & C. Electric and Manufacturing Co. of Garwood, N. J. He is a member of most of the leading technical societies of this country.

G. H. DYER CO. NOW HAS OFFICE IN CHICAGO.

The F. C. West Corporation, 624 Michigan avenue, Chicago, is now sales representative throughout the entire country with the exception of New England, New York and New Jersey for the G. H. Dyer Co., Cambridge, Mass., manufacturer of oxy-acetylene welding equipment and automobile parts.

FORM NATIONAL AUTOMOTIVE REPAIR ASSOCIATION.

The National Automotive Repair Association has been formed in Minneapolis with these officers: President, Arthur Sparling, Langdon, N. D.; vice president, M. H. Gavin, Minneapolis; treasurer, K. W. Kuknaw, Heron Lake; secretary, D. W. Onan, Minneapolis.

War Blacklists Are Lifted by Federal Trade Board.

The most important relaxation of trade restrictions since the signing of the armistice has been directed by the War Trade Board in an order wiping out the blacklists set up under the provisions of the trading with the enemy act, which has been in effect since Oct. 6, 1917.

The lists at one time contained the names of thousands of enemy controlled financial, industrial and public utility interests in other than actual enemy countries.

The order does not modify or affect in any respect the present restrictions against trade and communication between the United States and Germany or Hungary, nor does this action change the status of property seized by the alien property custodian.

STEWART-WARNER SALES TAKE BIG JUMP.

The sales of the Stewart-Warner Speedometer Co. are running over 40 per cent. ahead of a year ago, the demand for accessories from manufacturers and from the trade being heavy.

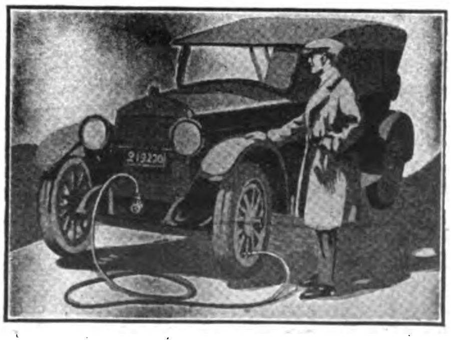
PURITAN MACHINE CO. PLANS COAST BRANCH.

G. R. Taylor, secretary of the Puritan Machine Co., Detroit, Mich., has left for a month's trip to Los Angeles, San Francisco, Portland and Seattle. He will conclude negotiations for a western coast branch.

DETROIT CRANKSHAFT PUMP IS LIVE SELLER.

The Detroit Crankshaft Pump, manufactured by the Detroit Accessories Corporation, Detroit, Mich., will doubtless prove one of the fastest selling accessories this year. It will be backed by an intensive campaign of national advertising and the dealers will be given all possible cooperation. The fact that a free air station is always ready in the tool box if you have a "Crankshaft Pump" is bound to make a big appeal to motorists. Interested dealers should write to the Detroit Accessories Corporation.

The dealers who take on this pump will have first choice on other accessories made by the corporation.



Detroit Crankshaft Air Pump.

Personal News of the Industry in Brief.

R. H. Johnston, former president of the Automobile Dealers' Association of New York City, is happy at the fact that the association is now about to enjoy the biggest boom in its history. With its proposed club rooms it will doubtless become a highly successful organization. During the years he was its president he worked hard to build it up.

R. H. Johnston, Former President of the Automobile Dealers' Association of New York City.

Carl L. DuPuy has resigned his position of field representative of the Selden Truck Sales Co., Rochester. He is succeeded by M. B. Keith, who will handle the Oklahoma and Texas districts.

C. W. Price has been elected general manager of the National Safety Council to succeed W. H. Cameron, who has resigned to become manager of Industrial Relations for the Eastman Kodak Co. Mr. Price has been field secretary for the council for some time.

Dale Eller, who was a lieutenant in the field artillery has been honorably discharged and has returned to his former position in the sales engineering department of the Oakes Co., Indianapolis, Ind.

H. S. Hanchett, formerly connected with the Ford Motor Co. and recently manager for Bingham & Norton, St. Paul, dealer in Stutz, Reo and Scripps-Booth cars, has become sales manager for the North States Motor Co., Minneapolis, distributor of Auburn cars for Minnesota, North and South Dakota, Montana and Western Wisconsin.

F. W. Bartling has resumed his position as manager of the Bart Motor Sales Co., Liberty dealer, at Dayton, O. He was recently discharged from the army.

J. L. Bovis, for the past three years connected with the Oldsmobile organization, has been appointed general sales manager for the Tri-State Motors Co., Youngstown, O. The company distributes Oldsmobile passenger and commercial vehicles.

R. E. Clingan has resigned from the Hess-Bright interests in Cleveland. He was for 11 years associated with that company. He will become associated as manager with the Bock Bearing Division of the Standard Parts Co.

Walter Alden has been appointed manager of the service department of the Willys-Overland Pacific Co., San Francisco, Cal.

J. H. Phillips has assumed the duties of advertising manager of the Chicago branch of the Oakland Motor Car Co. Mr. Phillips has had wide experience in merchandising motor cars.

Nick Wood, for the past 10 years connected with the B. F. Conwell automobile agency, has taken the agency for Studebaker cars in Logansport, Ind. He will be located temporarily at the Point Garage at 211 East Market street.

W. A. Riley, formerly connected with the Studebaker Corporation, Dallas, Tex., has assumed the duties of sales manager for the North Texas Oakland Co., Dallas, Tex.

John O. Munn has become advertising manager and assistant sales manager of the Republic Motor Truck Co., Alma, Mich. He was formerly advertising manager of the Willys-Overland Co.

Claude Greenhoe is now chief engineer of the motor bearings division of the Hyatt Roller Bearing Co., Detroit, succeeding R. G. Wells. Mr. Wells has been promoted to chief engineer of the Hyatt factories at Newark, N. J.

S. A. Host has become connected with the Lincoln Motor Co., Detroit, Mich., under Frank G. Eastman, advertising manager. He was formerly director of publicity of the Lincoln Highway Association.

E. A. Ruck has become associated with the Automotive Corporation of Fort Wayne, Ind. He will assume the duties of chief engineer.

E. A. Ruck of the Automotive Corporation of Fort Wayne, Ind.

V. K. McBride is now with the Premier Motor Corporation, Indianapolis, Ind. He was formerly assistant sales manager of the Federal Motor Truck Co.

V. K. McBride of Premier Motor Corporation, Indianapolis, Ind.

Eugene Bemb is now manager of the service department of the factory of the Hudson Motor Car Co. He has been with the concern since its organization.

S. Bloom, for the past several years a factor in advertising and merchandising, both in the United States and Australia, has been appointed director of advertising of the Essenkay Products Co. Mr. Bloom has been with the 41st Infantry at Camp Funston, Kan., for the past year. He will assume his new duties at the plant and general offices in Chicago, Ill.

Walter E. Anderson has become associated with the Curtis Tire and Rubber Co. of Muskegon. Mich., in the capacity of sales manager. Mr. Anderson will direct the sales policies for Curtis. He is well known throughout the trade because of his former connections with the Miller Rubber Co. and the Quaker City Rubber Co.

E. J. Jones has become associated with the Kissel Motor Car Co. of Hartford, Wis., in the capacity of southern representative, handling the company's distributors and dealers in the southern states. He was formerly connected with the Empire Automobile Co. of Indianapolis, Ind.

A. J. Wise has succeeded J. O. Hofbauer as sales manager of the Paige Detroit Co. of New York. Mr. Wise has been with the company for several years.

Lawrence H. Pomeroy has severed his engineering connection with the Vauxhall Motors of London, England, and is coming to the United States to promote a valve in the head car of his own design.

J. Murphy, who has been for the past three years and a half in France, has joined the sales force of the Briscoe Motor Sales Co. The company distributes Liberty cars in St. Louis.

E. B. Mull, president of the Mull Wood Work Co., and who is well known in the automobile trade, as he has been identified with production in the automobile industry for nearly a score of years, announces that his company has purchased the Tucker Wood Work Co., located in Sydney, O. The Tucker firm is a manufacturer of bicycle wood rims, auto steering wheels and allied lines.

E. B. Mull, President of the Mull Wood Work Co., Sidney, O.

Don M. Dickinson will represent the Parker Motor Truck Co., Milwaukee, Wis., in the southeastern section of the United States. Mr. Dickinson has had wide experience in the truck field, including connections with the Packard-Rochester Co., the Denmo Co., Cleveland branch and the Champion Motors Co., Inc. He has also been identified with the sale of Federal and Kissel trucks in Rhode Island. Besides being the manufacturer of the Woodworth truck he has the distinction of having operated the first jitney line in this country.

H. B. Niblette has been appointed supervisor of the tire sales division of the Thermoid Rubber Co., Trenton, N. J. For a number of years he was associated with the B. F. Goodrich Co. and recently has been a factory representative of the Quaker City Rubber Co. He has had varied experience in the tire business.

Lawrence Enos, for a year and a half first lieutenant in the Quartermaster Corps, has joined the Firestone Steel Products Co. of Akron, O., as manufacturers' representative in the Detroit district. Previous to enlistment in government service Mr. Enos was with the Steel Products Co. of Cleveland. For the past eight years he has been connected with the automobile industry.

M. H. Blank is now chief engineer of the Lynite laboratories of the Aluminum Castings Co., Cleveland. He was recently released as captain in the army. Previous to entering military service he was assistant engineer of the Premier Motor Corporation.

John R. Lee has resigned from the Ford Motor Co. He was connected with the Ford company for over eight years. Mr. Lee is credited with working out the details of Ford's profit sharing wage adjustment plan. During the past year he represented the Ford interest on the Automobile Industries Committee. He has not made known his future plans.

W. T. Francis is again with the Bearings Service Co., Detroit, Mich. He will be traveling representative of the Boston branch. Mr. Francis has been released from army service, prior to which he served as the company's New Orleans branch manager.

Jesse A. Smith was elected head of the Milwaukee Automobile Dealers, Inc., at the association's recent annual meeting. He is distributor of the Hudson and Essex lines in Milwaukee. The other officers of the association are: Vice president, R. G. Chidester (Packard); treasurer, F. J. Edwards (Dodge and Kissel); secretary and manager, C. P. Hatter (Buick). The directorate includes A. J. March (Mitchell), W. F. Sanger (Franklin), George W. Browne (Willys-Overland and Willys-Knight) and Al Reeke (Nash).

Lieut. W. J. Ahlstrom, recently dismissed from air service, has been appointed sales manager of Russell L. Engs, Inc., New York City, distributor of Cole Aero Eight cars.

George R. Hughes is now with the Service Automobile Co., 165-67 North Fourth street, Columbus, O., in charge of the electrical department of that concern. Mr. Hughes has had varied experience, having held the position of electrical engineer in the Delco factory at Dayton; also a year in charge of a big electric power plant at Jackson, O., and a year as train lighting equipment expert with the Barney & Smith Car Co.

Matt R. Korshin, who for a considerable period was located in the East as district sales manager for the Atterbury Motor Car Co., Buffalo, N. Y., on April 15 became associated with the Selden Truck Sales Co., Rochester, N. Y., as western sales manager, with headquarters at Chicago, Ill.

Matt R. Korshin, Western Sales Manager, Selden Truck Sales Co.

E. B. Ross, vice president of the Clark Equipment Co., Buchanan, Mich., manufacturer of internal gear axles and disc steel wheels for motor trucks, has just been elected mayor of Buchanan on a fusion ticket.

E. B. Ross, Vice President Clark Equipment Co., New Mayor of Buchanan, Mich.

"Ted" Ross, who is one of the best known automobile men in the country, is a graduate of the University of Maine, school of engineering, class of 1902, and is a member of Beta Theta Pi and several learned societies.

W. H. Mason has resigned as manager of the Milwaukee branch of the B. F. Goodrich Rubber Co. to become associated in an executive capacity with the J. R. Petley Co., distributor of Diamond tires and other rubber products. A. G. Underwood succeeds Mr. Mason.

A. L. Jacobs has been made territory sales manager for the Banting Co., Toledo, distributors of Paterson cars. Harry Hodge has joined the force of the company and has been made city sales manager for Toledo.

Samuel W. Ramsey, recently dismissed from the United States air service, has been made manager of the St. Louis branch of the Southwest Nash Motor Co. Mr. Ramsey was formerly in the Overland service at Kansas City.

Walter B. Elcock has been relieved from duty as adjutant of the 157th Depot Brigade at Camp Gordon and upon dismissal he held the rank of major of infantry. He has returned as manager to the Atlanta office of the Portland Cement Association, which was under his charge in March, 1917.

Samuel B. Dusinberre, western manager of the New Departure Manufacturing Co., with office in Detroit, died on March 26. He had been with that company for eight years. Mr. Dusinberre had been associated as general manager of the Westinghouse Storage Battery Co. and previous to that was purchasing agent for the Westinghouse Machine Co.'s plant at Pittsburgh.

Accessories Market in Scandinavia.

Reporting a wonderful outlook for automobile accessories in Denmark, Norway and Sweden, P. Matthiesen, who for the last six years has handled the King 8 cars in the Scandinavian countries, has arrived in New York to close contracts for passenger cars, trucks and tires. He is making his headquarters with W. R. Vogeler, export manager of the King Motor Car Co., Broadway and 52nd street.

Mr. Matthiesen, who hails from Vejle, Denmark, is a well known manufacturer of stationary motors and marine engines and motors for concrete mixing machines and did some unusual work during the war for the Danish government. He says that the Scandinavian countries at the present time are spending big sums for new highways and that the American automobile is in tremendous favor.

BUYS "KORK-TRED" FROM HOWE MANUFACTURING CO.

Kork-Tred, Inc., 500 Fifth avenue, New York, announces that it has taken over the making and vending of "Kork-Tred," Ford transmission lining, from the Howe Manufacturing Co., Chicago, and is prepared to fill small or large orders promptly. The "lubricating oil cups" is an exclusive feature of this product.

WESTINGHOUSE IN ALLIANCE FOR EXPORT TRADE.

Guy E. Tripp, chairman of the board of directors of the Westinghouse Electric and Manufacturing Co., has announced that an agreement has been reached with certain British interests under which the Westinghouse company sold its British holdings for cash and entered a commercial alliance looking to the development of export business.

MATTHEWS MOTORS.

Specifications of model F of the Matthews Motors, made by the Matthews Engineering Co., Sandusky, O., manufacturer of automobile, truck and tractor engines, follow: Four-cylinder, four-cycle, 3½-inch bore, five-inch stroke, piston displacement 192.4 cubic inches, weight (bare), 400 pounds; with bell housing, 440 pounds; power, S. A. E. rating, 19.6 horsepower; brake tests showing actual power delivered, 21 brake horsepower at 1000 revolutions per minute; 25 brake horsepower at 1200 revolutions per minute; 29.6 brake horsepower at 1500 revolutions per minute.

METROPOLITAN DETROIT.

The Metropolitan Detroit Electric Automobile Co., Inc., Manhattan, New York City, has been chartered with $10,000 capitalization by L. Weiner, W. Behrens and E. E. Parrack, 66 Seaman avenue.

J. G. Loeffel has been engaged to cover Wisconsin, Iowa, Minnesota and Illinois for the Hudson Motor Specialties Co.

WILLS RESIGNS FROM FORD MOTOR COMPANY.

C. Howard Wills, who was for 15 years connected with the Ford Motor Co. and before the organization of that concern with Henry Ford, and who was credited with having income from his connection aggregating $2,000,000 a year, has resigned. No announcement has been made by Mr. Wills as to his future plans. Mr. Wills is said to have engaged in the development of Ford cars and because of the uncertainty of Ford as to financial returns, agreed to accept five per cent. of the net profits of the company, which agreement, with modifications, continued until Mr. Wills voluntarily relinquished it.

C. Howard Wills, Automobile and Industrial Engineer, for 18 Years Associated with Henry Ford, Resigned from Ford Enterprises.

NEW NORWESCO PRODUCTS.

The Northwestern Chemical Co., Marietta, O., announces that it has added to its products two self-vulcanizing tube patches, Rubberback and Khaki Back. These patches are effective under extreme heat or cold and can be applied either in the owner's garage or as an emergency repair when on the road. Each outfit contains sufficient cement and emery cloth for making numerous hasty and permanent repairs.

FOREIGN ORDER FOR BOSCH.

The American Bosch Magneto Corporation has closed a contract with an Italian corporation for the delivery of 17,000 magnetos in the present year, according to a statement of the company. The shipments will be started this month. The order aggregates $500,000.

LIGHTNING MOTOR LINE.

The Lightning Motor Line, Inc., New York City, has been incorporated with $10,000 capitalization by W. F. Timms, B. Czajkowski and J. Hirsh, 937 Tiffany street.

Export of Automobiles and Parts.

The Bureau of Foreign and Domestic Commerce of the Department of Commerce reports that during February 1403 commercial vehicles, valued at $4,270,542, and 3041 passenger automobiles, valued at $3,719,485, were exported from this country. The value of the automobile parts exported was $2,699,741. Passenger cars went as follows:

Belgium, 3; Denmark, 36; France, 82; Greece, 21; Italy, 1; Norway, 26; Portugal, 2; Spain, 36; Turkey in Europe, 27; England, 3; Canada, 281; Nicaragua, 4; Panama, 6; Salvador, 7; Mexico, 203; Newfoundland, 5; Barbados, 3; Jamaica, 1; Trinidad, 9; other British West Indies, 1; Cuba, 213; Dutch West Indies, 4; French West Indies, 2; Haiti, 21; Dominican Republic, 5; Argentina, 213; Brazil, 121; Chile, 64; Colombia, 3; Ecuador, 2; British Guiana, 2; Peru, 77; Uraguay, 25; Venezuela, 24; China, 112; British India, 44; Straits Settlements, 2; Dutch East Indies, 72; French East Indies, 16; Hongkong, 30; Japan, 199; Siam, 35; Turkey in Asia, 10; Australia, 493; New Zealand, 222; Philippine Islands, 131; British South Africa, 140; British East Africa, 1; French East Africa, 1.

PENNSYLVANIA RUBBER DECLARES QUARTERLY DIVIDEND.

At a meeting of the board of directors of the Pennsylvania Rubber Co., Jeannette, Pa., April 21, the regular quarterly dividend of 1¾ per cent. on preferred shares and 1½ per cent. on common shares was declared, payable June 30 to stockholders of record June 15.

JENKINS VULCAN SPRING CO. GOES TO KANSAS CITY.

T. B. Jenkins, president of the Jenkins Vulcan Spring Co., makes this announcement: "Believing we can give better service we have moved our St. Louis branch to Kansas City, Mo. Therefore, after May 1, 1919, the St. Louis territory will be served from that point."

GRANT MOTOR TRUCK.

In the March issue of this publication, page 54, there is quoted the Grant Motor Car Corporation's 1800-pound truck listing for $1065, chassis only. This has just been changed and the truck is not now furnished chassis only, but is sold only with the commercial body complete for $1125.

LAST YEAR'S RUBBER IMPORTS.

Raw rubber imports of the United States for 1918 totaled 325,959,308 pounds and cost $146,378,313. Imports from the British East Indies alone amounted to 227,695,805 pounds. Imports for 1917 totaled 405,638,278 pounds, valued at $233,220,904.

H. H. Pete is now sales promotion manager of the Miller Rubber Co.

Andrew Motor Co. Has Good Proposal.

The Andrew Motor Manufacturing Co., Milwaukee, Wis., has an unusually attractive agency proposal for the merchandising of the Andrew Power Transmitter. The company cooperates with its representatives and does everything within its power to push sales for them. The "Proposal to Agents, Instructions and Detailed Information of the Andrew Power Transmitter" states in part:

"The Andrew Motor Manufacturing Co., with a paid up capital of $50,000, is doing a contract machine and manufacturing business of over $100,000 annually, has access to almost unlimited capital for future development and has a reputation for clean business transactions equaled by few, including even the largest manufacturing establishments in the country.

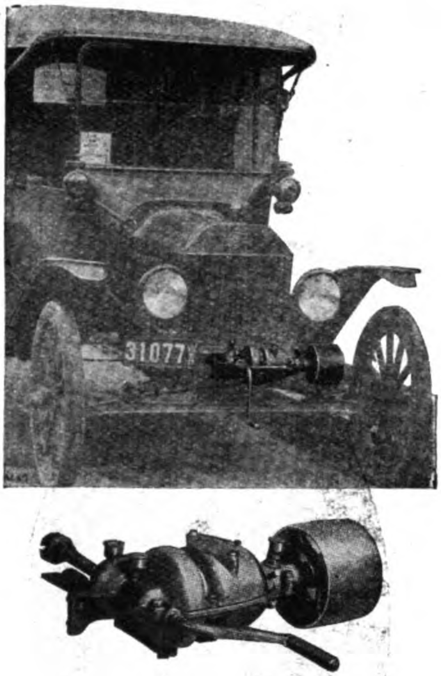
"After three years of experimenting we have succeeded in perfecting the Andrew Power Transmitter (an appliance designed to utilize the engine capacity of a Ford car for power purposes), such as running a feed mill, ensilage cutter, wood saw, corn sheller, pump, fanning mill, washing machine, small electric lighting plant, hoist for pulling stumps, unloading hay and other loads, well drill, small threshing machine, cider press, wool carder, cotton gin, hay press, concrete mixer, lathe, drill press, planer, shaper, band saw, hack saw, tool grinder and other small power appliances. It will develop up to 12 horsepower at the pulley, but we do not recommend that it be used in excess of eight horsepower (about 22 miles road speed) as the Ford engine is designed to give its best efficiency at about that rating.

"The Andrew Transmitter is equipped with centrifugal governor, to insure uniformity of speed under varying loads. It takes power from the engine crankshaft, without engaging any of the other mechanism of the car. It is light in weight (approximately 45 pounds) and attractive in appearance, so it can be left on the car if desired. It is equipped with double blade fan attachment to prevent excessive heating, and is guaranteed to user and agent alike, with our unconditional, satisfactory or money back guarantee.

"A Ford car equipped with an Andrew Power Transmitter is a most flexible and easily portable small power unit, as it can be moved about as fast as the Ford can travel and does not require a lot of valuable time to get ready for operation.

"The only thing necessary to shift location is to remove the driving belt, throw the car transmission into gear, drive to the new location, line up the transmitter pulley with the pulley of the machine to be driven, back up the Ford until the proper tension is obtained, lock the brakes, throw the car transmission out of gear, the transmitter into gear and start to work.

"The Andrew transmitter and twin blade fan set offers a great opportunity for a profitable business of your own, as there is no question about the demand for an article of this kind and retail prices are based on giving you a minimum profit of $10 on each transmitter sold, and a profit as high as $12 per set if you qualify as regular agent."



Those interested should write for further information.

OFFER PREFERRED STOCK OF HARTFORD AUTOMOTIVE PARTS.

Eight per cent. cumulative preferred stock of the Hartford Automotive Parts Co. is being offered for sale. The company, which has been incorporated under Massachusetts laws, is a consolidation of the Hartford Auto Parts Co. and the Kinsler-Bennett Co. of Hartford, Conn. The combined assets as of March 1 amounted to $1,788,280. After deducting all liabilities the net assets were $1,788,632.

REPRESENTS DAYTON SYSTEM FOR NEW ENGLAND.

The V. A. Nielsen Co., 708 Beacon street, Boston, is New England representative for the Dayton starting, lighting and ignition system for Ford cars. The Nielsen company is looking for New England dealers to handle the system.

Any dealer who is interested in the matter should write to the Nielson company for its proposition.

KEYSTONE TIRE HAS 103 STORES.

The Keystone Tire and Rubber Co. has special arrangements with 21 large tire factories whereby it takes their entire surplus production, all their slightly blemished tires, their discontinued styles and sizes and other tires which cannot be sold by the manufacturers through their regular channels. The Keystone company has 103 stores in this country. The company expects to have 150 stores by July 1.

Auto Clinic Attended by Dealers.

The latest thing is the "Automobile Clinic," just inaugurated by the Ford Motor Co. in its big establishment in Broadway in New York. Dealers from the wide territory controlled by the New York branch recently went to New York and in the basement of the Ford building saw an amazing array of tools for the quick repair of every part of a Ford car. Furthermore, they saw these tools in actual use in the hands of experts, who demonstrated the great efficiency of the equipment.

It was Gaston Plantiff's idea to impress upon Ford dealers the importance of the proper equipment of their service stations. The demonstrations seemed to represent really the last word in standardization and the dealers were deeply impressed. Representatives of the Fairbanks Co., which manufactures the tools, made the demonstration.

ALLEN MOTOR CO. PLANS EXPANSION.

Negotiations have been completed for bringing about the removal of the Allen Motor Co. from Fostoria and Bucyrus to Columbus, O. The company has increased its authorized capital to $3,000,000. Many of the most influential men in Columbus have taken a financial interest. The Scioto Rubber Co. is absorbed in the deal and the plant formerly used by the Columbus Buggy Co. is to be occupied by the Allen factories.

It is planned to build 5000 Allen cars within the first year and to increase production as rapidly as possible. The new plant, it is estimated, can build 20,000 cars a year as soon as the additional machinery can be installed and the production and selling organizations proportionately enlarged. In 1916, previous to war restrictions, 5000 Allen cars were built.

ACME ANGLES.

Acme Angles, the magazine issued by the Acme Motor Truck Co., beginning with the March number, has been enlarged and the mailing list has been increased to include Acme users and any others who may be interested in receiving a publication of this kind. Heretofore it was issued in four-page form, and sent to the company's salesmen and dealers only. There is no subscription charge. All that is necessary to get one's name on the mailing list is to signify his interest to the company. The enlarged magazine has 16 pages, illustrated with half-tones. The articles are particularly interesting.

NEW TIRE SALES COMPANY.

A charter has been granted in New York for the Fresno Tire Sales Co., Inc., with $5000 capital. The incorporators are C. A. Weldon, H. S. Harstein and A. Hirsch, 35 Nassau street, New York City.

Equipment Association Plans Show

THE board of directors of the Automotive Equipment Association, meeting at the Congress Hotel, Chicago, April 8, ordered that a show or exhibit be provided and arranged to be held in Chicago during the latter part of October, or the first days of November, as near as possible to that time and under substantially the same conditions as was contemplated in 1918, and appointed the following committee, to be known as an exhibit committee, to have charge of all matters pertaining to the show:

L. P. Halladay, Illinois, chairman; R. R. Englehart, Iowa; G. L. Brunner, New York; W. K. Norris, Missouri; F. B. Caswell, Ohio.

The feeling was expressed on the part of some that the show should be a closed show to manufacturers, but not to jobbers, and this argument developed that some who favored the "open show" to all comers last year had changed their position in this respect. This feature, however, was laid over along with other matters pertaining to same, for further consideration at the spring convention, which will be held at the Homestead, Hot Springs, Va., June 2-7.

The following were elected representatives to attend the convention of the National Foreign Trade Council at the Congress Hotel, Chicago, April 24-26: F. B. Caswell, Ohio; N. H. Oliver, Illinois; W. T. Walker, Wisconsin.

The following were elected representatives to the Chamber of Commerce of the United States of America: National councilor and delegate, E. C. Graham, Washington; sub-national councilor, Louis Stafford, Missouri; delegate, F. B. Caswell, Ohio; sub-delegate, W. L. Niekamp, Missouri.

Section 2, article 1, of the by-laws as modified as follows:

"Section 2. Any person, firm or corporation engaged in the jobbing of automotive equipment in the United States or Canada, who has a regular established place of business, buys in bulk or quantity for resale to established retail dealers, and whose major portion of business is done at wholesale, and who maintains a sufficient general stock to meet the requirements of his trade and keeps local and road salesmen, or any person, firm or corporation engaged in the manufacturing of automotive equipment, who produces one or more articles in the line, and in the ordinary, practical and commercial sense of these terms is generally recognized as a jobber or a manufacturer in this line of goods, may upon written application, become a member on receiving a vote of three-fourths of the members present at any regular or special meeting and any one so elected shall be entitled to full membership and to all rights and privileges thereunder."

R. R. Englehart, Member of Exhibit Committee.

Section three was repealed owing to change of membership at the Chicago convention in December, 1918. Otherwise the constitution and by-laws now stand.

There was created and elected by ballot on popular vote an advisory committee, to consist of six, an equal number of jobbers and manufacturers, which committee is to meet at least once a month at the call of the chairman, to confer with Commissioner William M. Webster on important matters that may from time to time arise. The committee was elected as follows:

R. R. Englehart, Iowa, chairman; N. H. Oliver, Illinois; Fred Campbell, Missouri; R. A. Stranahan, Ohio; J. S. Proctor, Minnesota; L. P. Halladay, Illinois.

The name of the Ways and Means Committee has been abandoned and given way to the more up-to-date and dignified name of the board of governors.

B. & W. MANUFACTURING CO. WILL BUILD RADIATORS.

The B. & W. Manufacturing Co. was recently organized to build radiators for the automotive industry. It is a corporation organized under the laws of South Dakota, with $600,000 capitalization. All the officers and directors, with one exception, are residents of Mitchell, S. D. The officers are: President and treasurer, Lawson W. Wright, Evanston, Ill.; vice president, Gage P. Wright; secretary, Charles H. Blenkiron. They, with J. C. Blenkiron, Frank Wright and Paul M. Young, are directors.

Active management of the business will be in charge of S. D. Briggs, general manager. The factory is at 5235-5237 Ravenswood avenue, Chicago. Special machinery has been installed for a capacity of 600 radiators per day. Both cellular and tubular types of radiators will be built. Engineers have been working on the special machinery for two years.

S. D. Briggs has been connected with the automotive industry for nearly 20 years, having been connected in turn with the H. S. Franklin Manufacturing Co., Syracuse, N. Y.; the Buick Motor Co., Flint, Mich.; Pence Automobile Co., Minneapolis, Minn., and Hupp Motor Car Corporation, Detroit.

C. E. Brelsford, formerly with the Splitdorf Electric Co., and Thermoid Rubber Co., will represent the B. & W. Manufacturing Co. in the East, with headquarters at Detroit.

R. H. Cory, formerly with the Howe Scale Co. and Perfex Radiator Co., will handle the western territory, with headquarters at the Chicago office.

Fenton L. Howard, the engineer, has made a special study of radiation for several years.

Philmore F. Spery, who is the desginer of the special machinery, has been retained as factory superintendent.

Contracts have already been closed for 40,000 radiators and the production is well under way.

The F. H. S. & Co., manufacturers' agent, with offices in the Grant Park building, Chicago, will handle the sales to jobbers.

AUTOMOBILE OWNERS' ASSOCIATION.

The American Automobile Owners' Association, Inc., auto business, has been incorporated with $25,000 capitalization by M. Koenig, S. Gottlieb and W. N. Loew, 299 Broadway, New York City.

OPEN ARMY SCHOOLS FOR AUTO MECHANICS.

In order that the United States army may have at its disposal a highly skilled body of motor experts, the Motor Transport Corps announces the opening of schools throughout the country for intensive training, along general automobile lines, for men who qualify for enlistment. These courses have been so arranged that the soldier will be able upon his return to civil life to claim rightly to be a machinist, an automobile repair man or an ignition expert.

It is desired that recruits have some previous knowledge of automobiles, but men without experience will be accepted and placed in courses for beginners. The schools will be conducted by civilian experts hired for this purpose by the government, and will extend over a period of months for each course pursued. Men who enlist in the Motor Transport Corps are paid the regular rates for soldiers of any branch of the service.

The Hartford Battery Manufacturing Co., Hartford, Conn., has been incorporated in Connecticut with $13,500 capitalization.

CAR APPEARANCE AND MECHANICAL DEPENDABILITY DECISIVE FACTORS

Prospective Buyers Are Influence to Great Extent by These Qualities—Economy and Ease of Operation Also Sought When One Looks for Suitable Automobile.

IT IS far easier to describe what a permobile than to tell what the average son should look for in buying an autoperson seeks. The automobile salesman knows what car qualities should appeal, but he is never sure of his ground in dealing with a customer until he ascertains the prospect's personal desires and prejudices.

There is one thing that every one undoubtedly wants, and that is mechanical dependability. A car that cannot be kept in operative condition has no real value as an automobile.

Most persons desire cars that will be economical in operation, although some well-to-do financially may disregard this feature.

Practically all want a car of good appearance, but their ideas as to what constitutes "good appearance" are very apt to agree with the size of their bank rolls.

Nearly all insist upon ease of operation. Even those who employ chauffeurs like to have machines that they themselves can handle occasionally, and the simpler the mechanism the better. They also appreciate the fact that ease of operation adds to safety.

The reputation of the manufacturer is usually the guarantee of mechanical dependability. Fortunately, the buyer takes little risk regarding this phase, as nearly all of the automobiles made by reliable manufacturers may be depended upon to give good service.

A person wants a car that he can afford to run. A man with a modest income realizes that even though he may be able to buy a high priced car, the operating cost will probably be more than he can consistently expend.

Have Pride in Ownership.

Persons with liberal incomes naturally prefer cars that will inspire pride of ownership. They usually want something that is "a little different" from most other cars, seeking individuality in their automobiles the same as they do in their clothing. As body styles keep changing, the custom body craft has attained a remarkable growth. Those who can afford to do so are very apt to buy a high grade chassis and have a body built to order.

Riding comfort is sought in all cars, no matter how they are priced.

A metropolitan automobile dealer, when asked what the majority of buyers lay stress on in making their selection of a car, said:

"The great majority of buyers are well up on motor car construction. They know what constitutes a good car and they have a general idea of what the best specifications cost in comparison with cheaper designs.

"Power is an essential—there can be no excuse for lack of it. Comfort speaks for itself. The springs, cushions, grade of leather and roominess come in for close examination.

"Strength is all important to the cost of operation. Simplicity of control is essential, as most cars are driven at least part of the time by women.

"Everybody wants a good looking car—one which calls for no apology. I know all people consider the factor of appearance as well as the other elements mentioned before the purchase price is considered.

"No one wants to pay more for satisfaction than is necessary, but the buyer requires performance, appearance and durability first. The price he has to pay for these essentials is a secondary consideration."

Buyers Know Car Design.

A manufacturing manager, who was interviewed along similar lines, agreed that the average automobile buyer knows motor car design. "He knows good car lines and knows when he is getting comfortable upholstery and satisfactory finish," said this manager.

He said that in no other industry was the public better informed upon what it wants.

"If auto manufacturers had been disposed to camouflage their products," he continued, "they could not have got away with it. In fact, those few concerns that have tried it have failed.

"Fortunately for the industry and the public, motor car makers have been alert to meet demand almost as soon as expressed. Automobile makers have always shown a typically youthful zest for improvement.

"That attitude, mated with the constructive understanding of the public, has, in a very few years, brought the motor car—a piece of machinery subjected to previously unknown and unprecedented hard service—to a standard of performance that is little short of miraculous."

The term "pleasure car" disappeared during the war. Automobile manufacturers and dealers, with a full appreciation of the pyschology of nomenclature, changed it to "passenger car." After the armistice a few dealers, who professed a preference for the old name, endeavored to get the public again to think of the automobile as a "pleasure car."

Buys Not Cars, but Transportation.

But the public seemed to like the new name. They realized that automobiles were no longer bought simply for pleasure, but mainly for transportation. Regarding this, one manufacturer said:

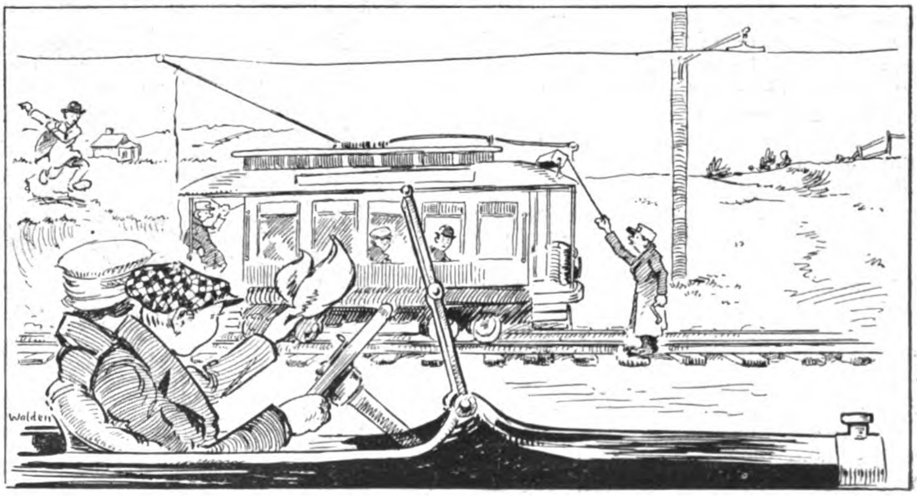
"The automobile buyer is buying transportation. The more perfected the car is in performance, comfort, appearance and utility, the more satisfactory the means of travel.

"It's just the same when you take a railroad trip—will it be the slow train or the limited? Will you sit in the day coach or the chair car? It is just a matter for you to decide how you want to travel and the time and frame of mind you want to arrive in."

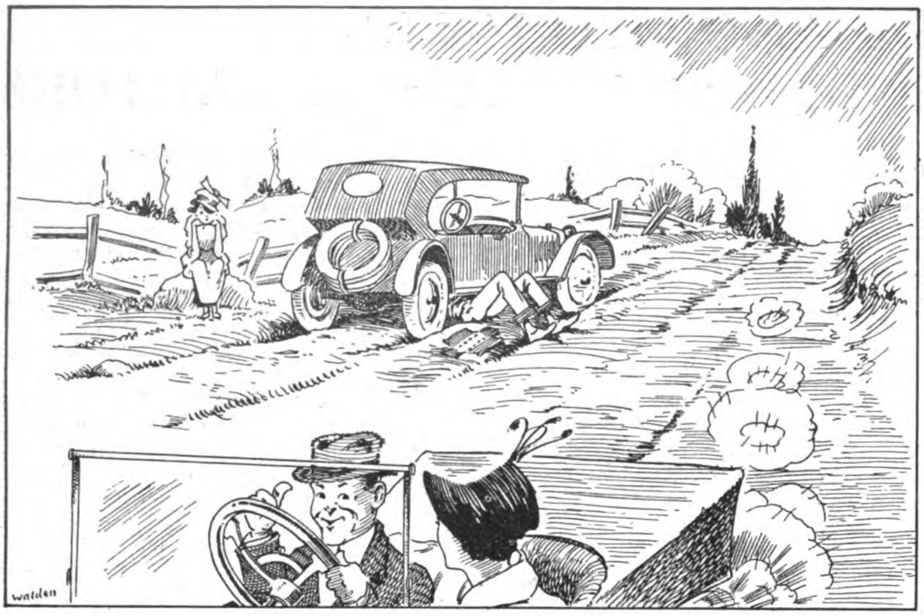
The manufacturer also argued that transportation in one's own automobile is but slightly more expensive than that furnished by the traction companies.

"Per mile a motor car may cost a little more than the street car or train fare would be in making the same journey," he said. "But the pleasure at this cost for a mile of motoring is so cheap in comparison to the joy of it that it is perfectly fair to charge a small part of the pure transportation rides to the amusement pages in the family ledger.

"In doing this the costs of maintaining and operating an automobile are in



Per Mile a Motor Car May Cost a Little More Than the Street Car or Train, but the Pleasure Is Cheap in Comparison to the Joy of It.



A Car That Gives You the Little Things That Make Motoring Enjoyable.

competiton with both transportation prices and pleasure expenditures."

Wants Best Value for the Cost.

Here are the ideas voiced by a metropolitan dealer who has been in close contact with buyers for many years:

"What the average prospect wants is the best value for the money he is going to spend. And he sets down his wants in the proper proportion, too. In getting value he looks first, I believe at performance. The shiny exterior and beauty of an automobile cannot lure him from his quest for the car that can deliver the goods.

"By performance, I mean that he wants a car that will serve him well and faithfully. In getting this he secures utility. He wants to be shown that the car he buys will stand up under ordinary conditions—and under extraordinary ones.

"Secondly, he wants economy in operation. Initial cost is subservient to this, I believe. But economy in operation has a string attached to it; it must be economical without a sacrifice of service and utility. Thus far he will go in economy and no more.

"Next, after economy in operation, comes design from the standpoint of care and the ability to 'get at' all parts that need attention. Bitter experience has taught too many motor car drivers the expensive results of making some minor adjustment on a badly arranged car, to ever let them select a new model without keeping the accessibility of its parts well in mind.

"Design from the purely mechanical side in matters of power and strength is covered in the demand for service and stamina.

"Finally, the average buyer wants comfort and convenience. He is not satisfied with any of the foregoing unless this last requirement is satisfied perfectly.

"I have mentioned these points in the order of their relative importance, not as in any way suggesting that the car which meets all but one will ever be selected by the average prospect. For the car that meets all but one of these demands is as badly off as if it met none of them.

"The point is in the way in which the average prospect goes about making his selection. His thoughts, I believe, come in the order named.

"Fortunately for both buyer and salesman there are motor cars which meet all of these requirements. Moreover, they meet one other—that of initial price. They offer the average prospect all that he demands and more at a price which is well within his ability to buy and which is truly low in comparison with what is given for it."

Power Is the Prime Essential.

Another dealer fails to tell what the average buyer looks for, but he gives his opinion as to what features should be sought. He says:

"Depth of upholstery and resilient springs are not the only essentials to comfort. Power, first of all, heads the list of what I consider the most important of all motor car essentials that make for comfort.

"The driver who has to give up his whole time to the operation of his car, with his hand constantly on the gear shift lever, certainly cannot remain in a very happy state of mind.

"What is wanted to make the driver as comfortable as the other members of the party is a road car—a car that can be driven without fussing round with pedals and levers.

"A comfortable car must have beauty in every line, with a finish that is rich and permanent. Not that exterior design and finish give the body rest, but they do impel pride in ownership and that means mental comfort.

"Narrow doors are inconvenient and hence they detract from the comfort of passengers. And it is decidedly uncomfortable if one has to stretch far from the driver's seat to manipulate instruments on the dash. A short wheelbase and lack of scientific body design means insufficient leg room.

"Accessibility of all moving parts for adjustment or repair is necessary to mental comfort. High tire mileage and low gasoline consumption add to the comfort of all other things.

"Absence of vibration and freedom from annoying rattles contribute to mental ease. And, of course, the cushions of the car are vitally necessary to bodily comfort."

The Chassis a Main Factor.

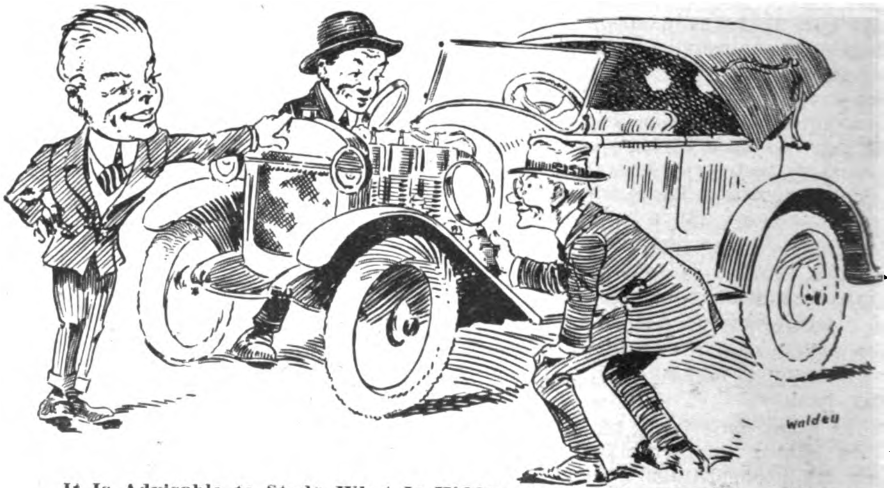
Another dealer deplores the practise of some buyers in concentrating their attention upon the body, rather than upon the mechanical features. He says:

"People who use motor cars seem to have come by the idea that their choice of cars should almost begin and end with things like the body style, the upholstery and the various items which contribute to comfort and convenience.

"They have seemed to forget that the one really big factor which has to do with their comfort and convenience is the chassis; and that if the chassis is right they are sure to get the greatest usefulness from their cars at the lowest cost.

"In all justice it should be said that the motor car buyers are not wholly to blame for this attitude. Many may have taken it consciously; it doubtless has come upon others unconsciously. The progress and development of the automobile may be said to be responsible.

"In the earlier days of the motor car, when it was in a more or less experimental stage, men bought no car until they were convinced by their own investigation or otherwise, that it was about the most dependable to be had within their means.



It Is Advisable to Study What Is Hidden Away Under the Shiny Hood.

"But that period of uncertainty, if you please, was of short duration. The motor car made long strides into a state of development which had dependability for its watchword. Which, of course, was exactly as it should be.

"Fundamental principles were found, and they are still fundamental. There was argument as to the number of cylinders, the kind of clutches, the best oiling systems, and so on. Each manufacturer, perforce, settled these matters according to his own lights. But all of them strove, and most of them succeeded, in producing designs and cars which were reliable and gave good service.

"The buying public was quick to sense this. One car appeared to be about as good as another, so far as reliability was concerned. The matter of buying a car largely became, first a question of price, and after that a question of a number of other things. Last consideration was given to the machinery.

Cars Are Primarily Machinery.

"In spite of the fact that motor cars are now dependable, economical in varying degree, and so on, the other fact remains that the automobile is essentially a piece of machinery. More than that, it is a piece of machinery which, speaking by the large, is expected to stand more ill-use and receive less expert care than any other expensively built machinery in the world.

"Just as the chassis—the machinery—is the foundation of the motor car, so it is the foundation of the owner's satisfaction, his comfort and his convenience. All three of them rest finally upon the service he gets from the machinery. Does that fail in a large way the other gets no satisfaction, comfort or convenience.

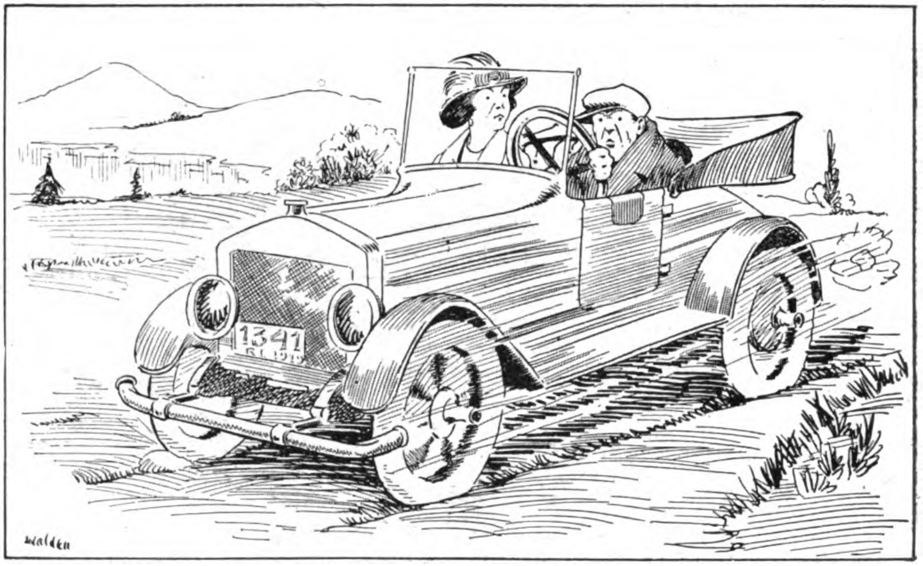
"It is true, of course, that the automobile has been perfected to a remarkable degree—if the word perfected can be used to describe something that probably can never be made full 100 per cent. perfect. But that does not of itself presuppose that all buying caution should be cast bodily to the winds.

"Different manufacturers have different ways of doing the same thing. Working from identical designs and identical specifications, two manufacturers will not produce engines that will render identical performance.

"In buying a motor car it is still a good thing to study what is hidden away under the shiny hood and the floor boards. It is still a good thing to take into account the manufacturer's reputation. It is still a good thing to make some study of the car's history and the opinion of its owners.

"When the buyer has satisfied himself on this score—when he is convinced that the piece of machinery he is about to buy is the best he can get for his price, or for any price, if that is merely a detail—then it is time to look to other things.

"People who buy motor cars should remember, for their own good, that a dashing body style, or fine upholstery, or a superlative finish, is but small compensation for a piece of machinery which does not perform satisfactorily. The motor car investment, primarily, should be an investment in machinery."



The Driver Who Has to Give His Whole Time to the Operation of the Car Cannot Remain in a Very Happy State of Mind.

Qualities the Buyer Should Seek.

One manufacturer would get buying of automobiles down to a systematic basis. He advises a prospective buyer to look for these features in a car:

1. Economy.
2. Power and flexibility.
3. Durability.
4. Comfort.
5. Safety.
6. Convenience.
7. Ease and care.
8. Easy riding.
9. Beauty.
10. Style.

Regarding these, he says: "Buy a car having an economical record, one that will give you a maximum amount of mileage for each gallon of gasoline. This is governed by type of motor, bearings, lubrication and weight.

"You want power in an automobile. You want to be able to go anywhere. You do not want to feel any limitations in this respect.

"Durability is something we all seek in making a purchase. It is especially important when one considers the amount involved. This item depends on the integrity of the maker, his honesty, his ideals, his standards.

"Convenience and comfort are important. Buy a car that gives you the little things that make motoring enjoyable and free from care."

Freedom from Care and Annoyance.

A manufacturer marketing a new car evidently was expressing his opinion of what the buyer seeks when he gave this description of his product:

"One of the features of our new car which appealed most to our customers was the car's ease of operation, simplicity of maintenance and its room and comfort. The car is so sturdily constructed that long life is assured, while comfort is obtained even on the roughest roads, by the long springs and the careful distribution of weight.

"The seats are real seats and their backs reach to the shoulders. All useless weight has been eliminated, which contributes to the exceptional performance of the car and assures long tire life.

"One of the most marvelous things about the car is the motor. The power of the car on hills, its acceleration and smooth flexibility of operation also are notable.

"In its construction nothing has been sacrificed to mere appearance, its beauty coming from inherent qualities of fitness of line and contour and from work correctly done."

There are some persons who look principally for the racing qualities of a car. They want a machine that will pass anything on the road. However, there are so many traffic cops and police traps nowadays that an autoist might just as well be contented with a car that will not tempt him to smash the speed laws to smithereens.

Must Consider the Woman Driver.

Feminine psychology is always a study for the automobile designer. There was a time when all the automobile maker had to do in order to get a woman's indorsement on his product was to build a car that appealed to the feminine sense of beauty and comfort.

He must go further than that now. He must provide a car that can be handled with ease. And that car must be so dependable that the woman who drives it knows that it will take her where she wants to go without even a suggestion of mechanical trouble.

However, women have not lost their first interest in the beauty of an automobile. The feminine desire for a distinctively individual car is quite as potent as before.

One of the greatest difficulties with the old-time cars was that the controls had been laid out more for a man that for a woman, with the result that when a woman tried to drive she found herself put to a great amount of discomfort and generally had to resort to some means, such as a cushion behind her back, to properly manipulate the controls.

Now the pressure on the clutch pedal has been reduced to such a point that it is an easy matter for any woman to properly work the clutch. Very often the reason she clashed gears in shifting was simply because she did not have the strength to disengage the clutch all the way. In other words, driving was a feat of strength as well as of skill.

Some makers have now gone into the matter of lightness of the clutch pedal to such an extent that it can readily be thrown out of engagement by simply pressing on it with the hand.

There are other ways that cars have been made better from the standpoint of the woman who drives. One of these is the more accessible location of the necessary tools. There are women who know how to make minor adjustments, but who shrink from the idea of attempting to lift the heavy front seat to get at them.

The Interior Arrangement of Cars.

The divided front seat is, of course, lighter than the continuous one, and with it the position beneath the front seat seems to work out quite nicely for the tools. If the manufacturer will use foresight enough to think out what would be the most useful articles to put in the flap inside the front door he will be surprised to find how many women would be in favor of the car from that standpoint alone.

Another terror which has been removed from the woman who drives in the country is the extended use of the power tire pump. Visions of back-breaking work over a tire pump in event of accident on the road disappeared with these tire pumps.

In the first place, there is always a spare tire at least on the rim and all pumped up and ready for use and then, in the remote chance that two punctures may occur on the same trip, it is possible with the use of the demountable, quick detachable rims now in use to rapidly put in a new tube which the engine power pump will inflate to the proper measure in a moment.

The modern top can easily be handled by a woman, and no one who rides in a modern machine need ever be afraid of mere weather, as the car has been rendered independent of it.

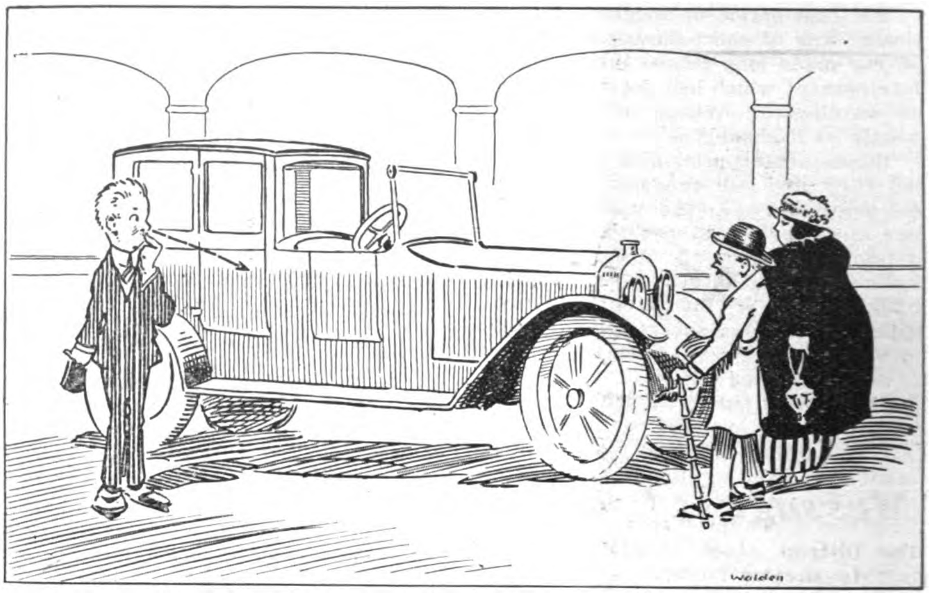
Position of the levers and other control features of the cars have been given greater attention from the woman's standpoint. The foot room in the driver's compartment is also better. There has been very much improvement by the better pedals that are now being used and by the practise of putting foot rests so that the foot is in an easy position, where it will not become tired, even on long drives.

TYPES OF BODY DESIGNS.

How the manufacturers strive to cater to the tastes of the motorists is indicated by the large number of types of body designs. The average person thinks of motor cars in roadsters, touring cars, limousines, coupes and sedans. Others might add on broughams and landaulets, but that would be about the limit.

First there is the roadster. It is the popular type seating two or three people. Sometimes an extra seat is attached to the running board or rear deck.

Next there is the couplelet. There is room for two or three in this model, which has a folding top, full-height doors and disappearing panels of glass.



Narrow Doors Are Inconvenient and Detract from the Comfort of Passengers.

Third comes the coupe. This will carry three or four, the added seat arranged to provide for emergencies as the rider sits facing the other occupants of the car. Fourth is the convertible coupe, a roadster with a detachable coupe top.

Clover leaf bodies are next. This is an open car that seats two in front and has an aisle between, allowing the passenger to take the third seat in the back, which forms a clover-leaf design. Some times the roar is widened to carry two.

Sixth we have the good old standby of a touring car, to carry four, five, six or seven. The salon touring car has a separate entrance to the front seats and a passage between them.

The convertible touring car is next in order. This has a folding top and disappearing or removable glass sides. These bodies are made more to order.

Sedans are now ranking as headliners in the sales, and they are as familiar as the touring car and roadsters. It is a closed car seating four or more in one compartment.

Also there is the convertible sedan, a salon touring car provided with detachable sedan top. Also there is the open sedan so constructed that the sides can be removed or stowed away so as to leave the entire space clear from glass front to back.

The limousine is a closed car seating three, four or five inside, with driver's seat outside covered by the roof. Next is the town car, somewhat on the lines of the limousine, but not so large.

The open limousine is a touring car with permanent standing top and disappearing or removable glass sides. It may or may not have a partition between the driver and the passengers.

Then there is the berline, a limousine having the driver's seat entirely inclosed. The landaulet is a closed car with folding top, seating three or more inside and the driver's seat outside. The brougham is a limousine type with no roof over the driver's head.

Some of the dealers have bodies built from their own special designs for customers, and they comprise some of the features of two or more of the foregoing.

ANNOUNCING NEW SEDAN.

A progressive dealer, announcing a new sedan, described it as follows:

"Without doubt it is one of the most perfectly appointed sedans to make its appearance this season. It is finished in a soft shade of cobalt blue, upholstered in special gray cloth, with small, soft green stripe. It has a roomy rear seat with two opera type removable front seats. This is a very roomy body; beautifully enameled low colonial design with solid, substantial appearance, yet light enough to warrant the best possible performance. The appointments of this new sedan are most complete. There is a specially designed three-piece windshield that is a marvel in effect and appearance and a most complete instrument board of dull walnut finish equipped with speedometer, Waltham eight-day clock, ammeter and switches and oil gauge.

"The inside arrangement of the sedan shows much thought and knowledge of the requirements of a perfected sedan. There are two attractive dome lights that are automatically lighted when either door is open. The divided front seats of the body fitting the design, with eight-inch passage space between the plate glass windows in the body. The doors can easily be lowered to any height desired without danger of change in position or rattling. Doors are solid and fitted with non-rattlers, all metal fittings are of the finest and latest design.

"Outwardly, this sedan is different from the regulation type. Instead of the usual heavy belt appearance around the middle, it has a decided cabin boat appearance, thin-waisted, with sharp streamline entirely around the body, with square corners at rear, giving that perfect colonial effect so pleasing to the eye. Nothing has been sacrificed or overlooked to make this sedan beautiful, plain and comfortable."

The dealer then continues with a brief description of its mechanical features.

TRADE
ANNOUNCEMENTS
W

Message to Dealers

The Detroit Accessories Corporation, in a "Message to Dealers," outlining its advertising campaign, announces that "any product manufactured by this corporation and offered for sale through dealers is going to be liberally advertised."

The Detroit Crankshaft Pump is to be backed by "a bigger and stronger campaign of national advertising than was ever before put behind an accessory of this kind."

The national mediums of largest circulation and greatest influence will be used in connection with the trade and technical papers. A campaign has been inaugurated that will extend through the entire year and will tell the story of the Crankshaft Pump in a convincing way to every motor car owner in America.

"If you are a wide-awake dealer and want to get in line for a big, profitable, easily handled business, write immediately to the sales manager of the Detroit Accessories Corporation," states the message.

"The Crankshaft Pump is just one of the good things we are going to offer you. The dealers who get in line now will, of course, have first call on any other specialties that the Detroit Accessories Corporation may issue from time to time.

"And you can always depend upon this one point—the Detroit Accessories Corporation is a believer in advertising. Every product that is put on the market by this company will be advertised in a way that will make it a ready seller.

"Better write today and let us show you how we are going to help you make money."

PEERLESS SPECIALTIES.

The Columbus Varnish Co., Columbus, O., has sent 30,000 of its 1919 circulars to the automobile accessory trade. The mailing list included hardware stores carrying automobile supplies. There is an illustration of an attractive set of window display material that is furnished to any garage, dealer or jobber carrying Peerless Automobile Specialties. The various Peerless specialties are fully described and illustrated. The company's products are sold throughout the world by all kinds of dealers and jobbers, such as garages, dealers in auto supplies, paints, varnishes and oils and general merchandise.

"Make Old Cars Look Like New" is the slogan, and it is emphasized that the Peerless specialties can be used by any one, no experience being necessary. "Complete directions on each can," reads the circular. "So simple that any owner, chauffeur or garage man can do the job, improving the appearance of any car."

An advertising and dealers' sales help service backs up these products. The Peerless line is an attractive one for any dealer or garage man to handle.

BOWSER BOOMER.

The "Bowser Boomer," issued monthly by the S. F. Bowser & Co., Inc., Fort Wayne, Ind., manufacturer of oil and gasoline storage equipment, and edited by C. H. Davies, is a live wire publication that infuses optimism into the Bowser army of salesmen.

"And what of Bowser?" it says. "Never before in our history have opportunities so unmistakably beckoned to us. The demand for Bowser products in all fields has never been greater. Hundreds of millions of dollars are released for new enterprises. Listening ears hear the hammer and clank and whir of factory and mill production everywhere.

"It spells a big year for Bowser salesmen. We have the 'goods' and we are going to 'deliver' them. We urge you to put forth your best efforts now and get your share."

A handsome loving cup is to be awarded to the district office that leads all others in Bowser sales this year. Last year was filled with wonderful sales achievements in the Bowser organization, notwithstanding the handicap of the war, and 1919 is filled with every evidence of sales speed and aggressiveness in all districts. Washington, which headed all the districts last year, seems to have had a running start and is taking advantage of it.

GRAPHITE.

Graphite, the magazine of the Joseph Dixon Crucible Co., Jersey City, is always a welcome and valuable visitor. The April number is filled with interesting and instructive articles. It is well worth while getting your name on the Graphite mailing list.

New Era Specialties

The New Era Spring and Specialty Co., Grand Rapids, Mich., has issued a jobbers' proof sheet and condensed catalogue of New Era "Better" Motor Requisites. The company makes standard lines, which are nationally advertised and marketed only through accredited jobbers. "During the past seven years," states the company, "more jobbers catalogued New Era Better Springs than all others combined. The list prices yet remain the lowest, to more closely follow the car factory lists. One hundred and twenty-two jobbers during 1918 supplied 58,000 New Era Sly Tire Carriers—all modern, strapless, quick acting, of course. The demand for New Era Better Spring Bumpers far exceeded the supply for 1918 and their acknowledged superior patented features and popular price are enlisting much co-operation for them. Other New Era accessories speak for themselves. The prices on all are right—the goods are right—our policy is well known. Our constant national trade paper advertising will be increased."

FAFNIR BALL BEARINGS.

"Fafnir Ball Bearings for Pleasure Cars" is the title of an attractive and decidedly interesting booklet published by the Fafnir Bearing Co. "The title of the booklet which we are sending you," reads a letter that accompanies it, "may seem a little ill-timed to those of our friends who are, or rather were, manufacturers of passenger cars. However, the passenger car is at present one of the best examples of what can be accomplished in the way of conserving power and promoting durability with high grade ball bearings, and the lesson taught is equally applicable to trucks, airplanes and all kinds of machinery. In addition to this, special types of passenger cars are actually essential for diverse uses in connection with war activities."

AUTO EQUIPMENT FIRM.

The International Auto Equipment Co., 790 Broad street, Newark, N. J., has incorporated with $10,000 capitalization. William P. Reibold, 20 Grace street, Irvington, is one of the incorporators.

EXPORT DEPARTMENT
W

Bordeaux Fair

With reference to the Bordeaux Fair, May 31 to June 15, it should be remembered that approximately one-third of the merchandise bought for and imported into the French colonies, as well as of the products exported therefrom, are handled by Bordeaux firms and shipped via Bordeaux, and that the previous Bordeaux fairs have justified their interest in the colonial exposition.

It is beyond doubt, as evidenced by the numerous requests for commercial connections with American manufacturers and exporters by French firms and business men (many just being liberated from military service), and by the very apparent leaning toward American goods and commerce, that participation in the Bordeaux Sample Fair by American firms will be of special interest to the French merchants and public and will be highly profitable to American exhibitors.

It is the purpose of the fair management to group the American exhibits in a position as favorable as their extent will merit. Any special information and entry forms may be obtained from the Lamontagne Chapman Co., 101 Park Ave., New York.

NORWEGIAN EXHIBITION.

Efforts are being made to hold an exposition in Christiania of American-made goods in the summer of 1919. The American minister there writes that he considers the idea an excellent one, as since the outbreak of the war Norway has come into closer commercial relations with America and undoubtedly a considerable portion of the trade that formerly went to other countries has been diverted to the United States. A part of it will naturally return to the old channels, but an exposition of the nature proposed will do much toward developing and maintaining trade relations with the United States. It is intended that the exhibition will include all branches.

BRITISH BAR ENEMY AUTOS.

German and Austrian made motor cars are barred from the automobile show, the first since before the war, that the British manufacturers are to hold next November at Olympia, London. The prohibition also extends to tires and accessories of all sorts made in enemy countries. Furthermore, the British motor press has decided not to accept advertising from German and Austrian manufacturers.

With the exception of the enemy countries it is the intention of the Society of Motor Manufacturers and Traders, which is to conduct the show, to make it international in scope. This international plan may not meet with full favor among the manufacturers, for they appear to be more afraid of the inroads of American built cars than they are of German and Austrian cars.

SOUTH AFRICA.

The birth of South Africa as an industrial nation was due to the war. At the outbreak of the war South Africa was essentially a producer of raw materials, depending on outside sources for her manufactured products. Cut off from her markets by the suspension of international traffic, she was thrown upon her own resources to supply the immediate and urgent needs of her population. This could only be done by the utilization of the raw materials which South Africa had previously exported. Plants and factories were built and are now turning out a large part of the manufactured materials which before the war had been imported.

The war sent many South African merchants to this country with the result that they have learned and the American business men have appreciated that they have much in common. The establishment of direct steamship communication between the United States and South Africa is an enterprise that will do much to make American products better known in the Union.

America has much in the way of manufacturers, especially in farming machinery and tractors, that South Africa needs. A good market for automobiles exists.

ROUMANIA.

To assist American business interests in the development of important opportunities in connection with the reconstruction of Roumanian industrial and commercial life, the American-Roumanian Chamber of Commerce has been formed, with headquarters in the Woolworth building, New York. Roumania desires to prevent, as far as possible, any resumption of German domination. The Chamber of Commerce will aid American exporters in any way possible.

"The Levant"

"Does the average American merchant, manufacturer, exporter and business man know exactly what the Levant is?" asks A. Polyzoides, in a report circulated by the American Manufacturers' Export Association. "Does he know that the great area of the Near East is one of the greatest markets of the globe? Does he know that such being the case the market is open to us, and ours for the asking?

"Does he generally know that the term Levant comprises a territory 5,000,000 square miles wide, with 150,000,000 people, all buyers and consumers of the goods we produce? Does he know that the Levant needs, year in and year out, an amount of goods representing half a billion dollars?

"Chief among the many advantages of doing business in the Levant is the fact hitherto scarcely appreciated, of the complete safety for all kinds of investments that will be made in that part of the world. Of all the countries in the world America is the one which enjoys the unanimous confidence of the Levant peoples."

He says the Levant needs bicycles, automobiles and agricultural implements and machinery.

ARGENTINA.

Robert S. Barrett, commercial attache to the United States Embassy in Buenos Aires, says it cannot be expected that the United States will continue to supply Argentina with the greater part of its imports of cotton and woolen goods, etc., but that imports of such goods as automobiles, iron and steel, etc., in which America had a large part before the war and which have been reduced by war conditions, will be greatly increased.

NEW POLISH REPUBLIC.

In reconstruction the new Polish republic will need automobiles, trucks, tractors, machinery, implements and tools, according to Steven de Cseesznak, president of the newly formed Society of Polish Engineers and Business Men in America. Ralph Modjeski, a prominent civil and consulting engineer, is honorary president of the new organization, which has its headquarters in New York.

AUTOMOTIVE EQUIPMENT INDUSTRY & TRADE

HARDWARE MEN NOW SELLING AUTO TOP MATERIALS.

T. James Fernley, Philadelphia, secretary of the Automobile Accessories Association, an associate branch of the National Hardware Jobbers' Association, has asked manufacturers making anything in the automobile accessories line to list their products with him for the information of the association.

Mr. Fernley said that recently hardware jobbers and dealers had been stocking and selling a line not heretofore recognized as a hardware commodity and which they seemed forced into by circumstances. This, he said, included automobile top and curtain fabrics, upholstering fabrics and the transparent sheeting used as window material in some automobile curtains.

Secretary Fernley pointed out that thousands of automobiles are owned by farmers and residents of small towns in which there were no repair men capable of renewing curtain windows, the curtains themselves or of fixing breaks or leaks in automobile tops. Many of these breaks could be repaired by the owners with proper material available.

Until the hardware trade recently began to stock rubber top materials and transparent sheeting, it was necessary for many owners of damaged cars, Mr. Fernley said, to go miles to larger cities to get the material to replace broken window panels or repair leaks caused by breaks in the tops of cars.

MARLIN-ROCKWELL WILL MAKE ROLLER BEARINGS.

When the present order for 18,000 rifles is completed at the Marlin-Rockwell Co.'s plant in Norwich, Conn., the plant will take up the manufacture of ball and roller bearings. As fast as the departments are through with rifle making the machinery in those departments will be removed and replaced with new, to be used in the new line of work. It is expected that no complete shut down will be necessary. Employment is now being given to from 700 to 800 hands, and it is expected that this number will be doubled.

NEW ENGLAND AGENTS.

Joseph E. Simpson and F. T. Bachman have been appointed New England representatives for the Hudson Motor Specialties Co.

PETERS & HERRON CO. IS NEW CORPORATION.

The Peters & Herron Co., Columbus, O., has been incorporated to take over the business of the Peters & Herron Dash Co., the Nu-Back Fur Co. and the Ohio Co. The Peters & Herron line of auto accessories has been extended, and Nu-Back will be used in the manufacture of linings for auto accessories, robes and sport coats. Charles M. Peters is president of the new company.

NEW YORK COIL CO. TO DISTRIBUTE OWN LINE.

The New York Coil Co., 338 Pearl street, New York City, has discontinued distributing its products through the Gray-Heath Co., Chicago. All orders hereafter will be received at the New York office and goods will be shipped from the same place.

AUTOMATIC SAFETY GUIDE CO.

The Automatic Safety Guide Co., to manufacture and sell and deal in and equip vehicles with lamps, etc., has been incorporated with $100,000 capital by Richard H. Sharp, James Mayner and F. Hoppe, all of Philadelphia, and W. I. N. Lofland, Dover, Del. The charter was filed in Delaware.

LEE RUBBER AND TIRE SALES INCREASE.

The Lee Rubber and Tire Corporation for the year ended Dec. 31 last reports net sales of $4,609,924, compared with $4,073,895 in 1917, and a surplus of $200,348, equal to $2 per share on its outstanding stock, against $22,589 or about 23 cents on its stock in 1917.

GAUL, DERR & SHEARER ON WHOLESALE BASIS.

The Gaul, Derr & Shearer Co., Philadelphia, automotive equipment, has discontinued its retail department and put its business on an exclusively wholesale basis.

INCREASES CAPITALIZATION.

A certificate of increase in capital stock has been filed in Connecticut by the City Auto Repair Co., Hartford. The capitalization is now $10,000 and it will be increased to $50,000.

FRANKLIN ENGAGED BY REMY ELECTRIC CO.

Milton W. Franklin, one of the best known consulting electrical engineers in the United States, has been engaged by the Remy Electric Co. and is now permanently located at the Remy factory in Anderson, Ind. For two years he was professor of radiology at the Polyclinic in New York and director of the Department of Radiology in the New York Health Department. He has been connected with various electrical railway companies, with the General Electric Co., and was president and general manager of the C. & C. Electric and Manufacturing Co. of Garwood, N. J. His research in various branches of electricity holds forth promise that his work with the Remy organization will be productive of favorable developments in the automotive electrical line.

TO MAKE METAL APPLIANCES FOR MOTOR CARS.

The Holdsit Manufacturing Corporation, Hudson Falls, N. Y., has been chartered with $200,000 capitalization, to make metal appliances for use on motor vehicles, by W. R. Hamm, R. C. Vincent and E. V. Bulow, Hudson Falls.

NEW CORPORATION TO MAKE AUTOMOBILE PARTS.

A charter has been filed in Delaware for the Motor Bus Equipment Co. to manufacture parts for automobiles. Capitalization is $3000. The incorporators are George V. Reilly, William A. Rodgers and Philip L. Neiser, New York.

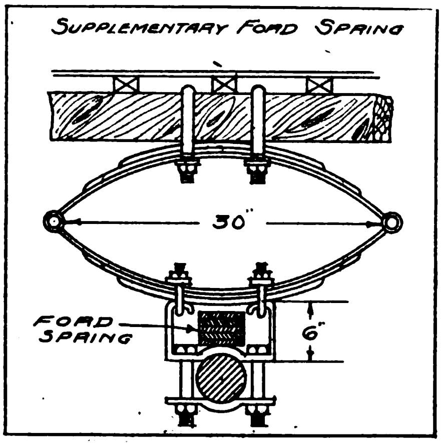
WILL MAKE MOTORS.

The Foster-Roskam Co., Inc., to make motors, boats and vehicles, has been chartered with $20,000 capitalization by H. M. Samcier, I. E. Roskam and P. Ross, 1896 Broadway, New York City.

TO MAKE ENGINES.

Langton & Backer, Inc., to make motors, engines and airplanes, has been chartered with $5000 capitalization by C. U. Backer, C. C. Buitt and T. J. Langton, 7 West 108th street, New York City.

SUGGESTIONS FOR CAR OWNERS



SUPPLEMENTARY SPRINGS FOR FORD.

When the Ford car is converted to a truck for commercial use, the rear spring is often overloaded, because nearly all the extra load is carried on it. In addition to this truck bodies often carry the load rather high, so that there is considerable sidesway when rounding corners. This imposes unusual strains, which tend to break the rear spring.

A set of supplementary springs, which carry the load of the truck body out to near the ends of the Ford rear axle, can be made by using a couple of full elliptic springs, about 30 inches long. These springs can be from 1½ to two inches wide, depending upon the load. They should have about four leaves in each section. In order that these springs may not interfere with the usual transverse rear spring of the Ford rear axle system it is necessary to support the lower part of these springs on special brackets or clamps, instead of directly to the rear axle. These clamps may be made by any blacksmith, from iron two inches wide and one-half inch thick. The brackets are clamped around the rear axle housing by means of a pair of half-inch or five-eighths-inch bolts for each bracket.

The springs are fastened to the body sills of the truck and to the special brackets, by means of the usual U shaped spring clips. Sufficient space should be left within the brackets so that the regular Ford rear spring can move up or down to the full extent of its movement.

DELION CORD TREAD TIRES.

A new kind of pneumatic tire which is guaranteed to be permanently non-skid and adjustable on the basis of 7500 miles of service, tread being composed of a combination of rubber stock and fabric, with the fabric standing on edge so as to come constantly in contact with the road surface. This feature gives the tire its non-skid qualities.

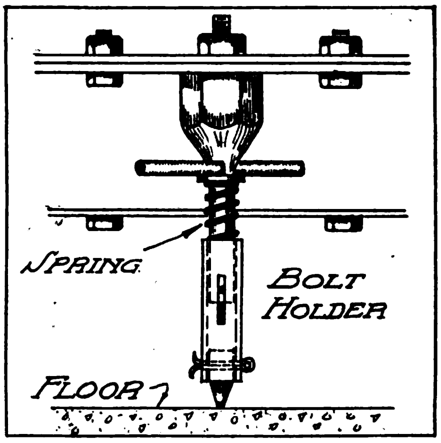
The tread construction of the tire is entirely different from any other for the fabric is impregnated with rubber under a new process by which the rubber is drawn into the fabric by suction instead of forced in by pressure. Thus the bond between the rubber and fabric is claimed to be much closer than by the other process.

DRUM HOIST.

The next time you are stuck in the mud or sand remember that you can fasten a rope to a tree or post, give it a turn around one of the rear wheel hubs and start the engine on either low or reverse, and by holding the rope taut the automobile will pull itself toward the post or tree. The action of the rope upon the hub is the same as that of a drum hoist. Of course it will be necessary to hold the other rear wheel stationary either by a rope or chain, unless it is on solid ground.

QUICK ACTING BOLT HOLDER.

When removing the bolts that hold the transmission cover and the cylinder block to the crank case, it is necessary to hold the bolts—to keep them from turning—while the nuts are being removed.



As these bolts are all at practically the same distance from the floor—but floors are not always even—it is possible to make a tool having a spring to act as a means of adjustment to compensate for any variations in distance, from floor to crank case flange, which may exist.

The socket fits over the head of the bolt, and this socket is kept from turning by the short steel rod, which strikes against the side of the crank case. The coil spring presses the socket up against the bolt—the top of the spring pressing against a washer.

The lower end of the spring presses against the piece of pipe which forms the body of the tool. A steel pin, working through a slot in the side of the pipe, keeps the tool from coming apart when not in use.

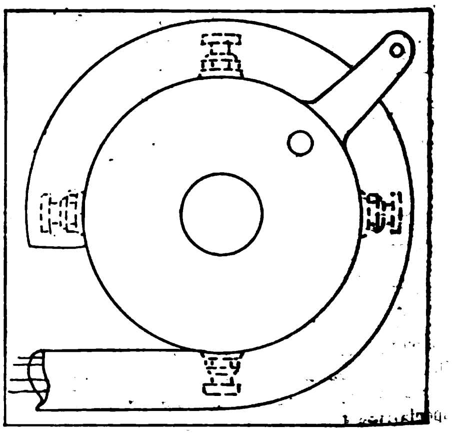
A pointed steel plug jams into the floor and keeps the tool from slipping out of the position in which it is placed. The plug is held in the lower end of the pipe by a cotter pin, passing through both pipe and plug.

ELIMINATING OIL LEAKAGE.

On all Ford cars of recent models there are one-quarter inch holes drilled in the cylinder block directly over the camshaft, one hole between No. 1 and No. 2 cylinder valve lifters, and one hole between No. 3 and No. 4 cylinder valve lifters. These holes are to carry the oil that comes up through the valve lifters back to the crank case so as to prevent it running down the outside of the motor. Any owner of the earlier models which did not have these holes drilled and are bothered with the oil leakage and cannot have holes drilled very easily, will get some relief by drilling a one-eighth inch hole in the upper corner of each valve cage cover. There is more or less vacuum in the valve cage which helps to suck up the oil. When there is a small hole in the corner of the valve cage cover there can be no vacuum. It is recommended to drill this small hole in the valve cage covers on all Ford cars.

TIMER INSULATION.

A large percentage of electrical troubles on the automobile are caused by the breaking down of insulation by oil or water and consequent short circuiting of the current. This trouble frequently is found at the points where the timer wiring is connected with the timer in the Ford car. Obtain a piece of circular loom (the largest size) at any electrical supply house, long enough to extend from the dash board to the timer and once around it, and starting about half an inch from the end cut four holes through one side just large enough to slip over the timer binding posts, the distance between them being the same as the distance between the timer binding posts. Now connect the wires with the timer and pull one through each hole in the circular loom, winding the tube around the timer and pulling the wires tight to hold it in place. When all wires are pulled tightly in the tube and the circular loom slipped over the tops of the binding posts as shown in the illustration, it will be impossible for oil or water to reach the wires. The circular loom is flexible enough to permit easy turning of the timer.



Suggestion for Method of Insulating Ford Car Timer.

HANDY TUBE RACK FOR THE REPAIR SHOP.

A very handy rack that will save its cost many times over can be made in a few hours time by any one handy with tools for holding tire tubes that are brought in for repair, and for the tubes used in the regular shop cars. It can be made as follows:

From your local lumber dealer procure the following:

Fifteen pieces eight feet by six inches grooved and tongued stock, ¾ inches thick.

Six pieces six feet by six inches grooved and tongued stock ¾ inches thick.

Twenty-four pieces 18 inches by 18 inches planed, ¾ inch thick.

Four pieces eight feet by four inches by ¾ inch thick.

The eight feet by six inch pieces are to be used for shelves, made up of three of these strips of grooved and tongued stock. There will be four shelves and one section for the top of the rack when finished.

The six feet by six inch pieces are used for the sides, three for each side. This will make the shelves eight feet long by 18 inches wide. And the sides six feet high by 18 inches wide.

After the shelves have been put together, take the No. 1 or bottom shelf and mark off on one edge points 18 inches apart. Do the same on the opposite edge. These marks will give the centers for the 18 inches by 18 inches partitions. These may be secured in place from the under side by nailing. These nail on the sides. Put in the second shelf, nailing the ends to the sides 18 inches from the lower shelf. Nail the lower partitions to this shelf also. This second shelf is to be marked off into 18 inch spaces, the same as the first shelf. Put partitions in place on this shelf, holding them in their proper positions with either cleats in the corners or toe nailing them with wire nails on the ends. Put the third shelf in place as you did the second and continue with the others till you reach the fifth and last. This goes on top to complete the rack. Take one of the eight feet by four inch pieces and nail this to the front edge of the shelf, allowing it to overlap above and below the shelf about 1½ inches. Put the other strips on in like manner. These may be used to carry the box numbers or sizes as the case may be.

This rack may be set on the floor in the stock room, placed against the wall, or raised from the floor, and fastened to the wall by brackets at the bottom. As a storage rack for tubes this has proved very useful, as the tubes come from the repairer they are folded as in Fig. B, strings tied around them carrying the owners' names. They are then put in the bin carrying their sizes at the top, to remain until called for. The completed rack is shown in Fig. 1.

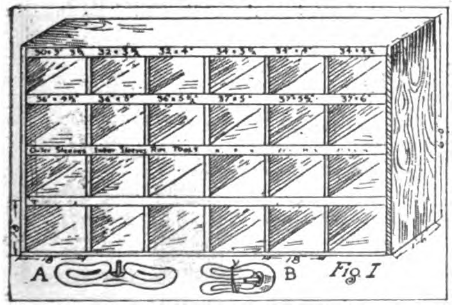


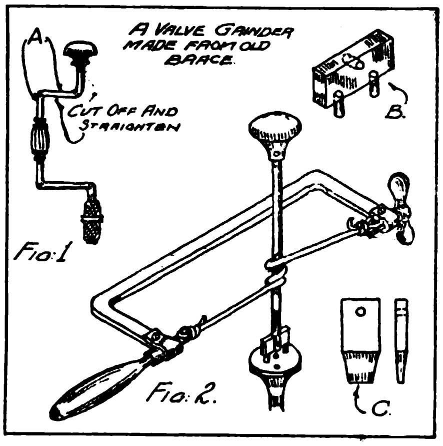
Fig I

HANDY VALVE GRINDING TOOL.

To make a handy valve grinding tool that may have interchangeable heads take an old bit brace such as may be found around any private work bench, straighten out the bent sections and cut off the end. Slot this end with a hack saw and drill to receive the end or head that does the valve grinding. Bore a hole through the ends of the slot and thread and countersink this to receive a screw.

To make the head piece, take a piece of stock ⅛ inch thick by ¾ inch deep, drill a hole in center of this to match drill hole in the rod and thread this the same way as rod. This head piece should be as long as the face of the valve to be ground. Holes are bored in this as shown in the sketch at B to receive pins a short distance in from the ends to match the holes in the top of the valves.

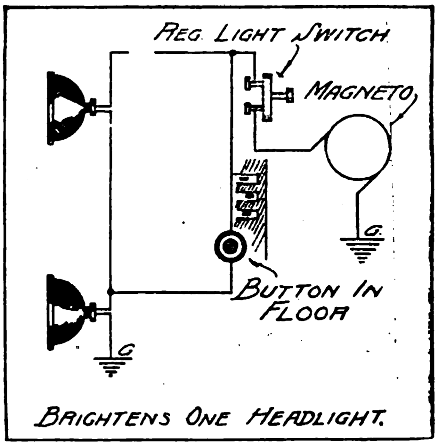
Another type of valve has a slot in the head and for this you want a piece of flat stock about 1⅛ inches wide, one inch long and as thick as the slot in rod is wide. Drill a hole in the center to match the hole in the end of rod and thread it. Heat this piece of stock, draw one edge down with a hammer to fit the slot in the head of the valve and fasten to the grinding tool with a screw.



Take a hack saw frame with a piece of rawhide or heavy string wound several times around the valve grinding tool, as shown in cut. Hold one hand on the top of the valve grinding tool and with the other hand push the handle of the hack saw frame back and forth from you. This will give a rotary motion to the grinding tool, reversing it at the end of each stroke. The cost is practically nothing except the time required to make it.

BRIGHTENS ONE HEADLIGHT.

When driving slowly in high gear there may not be enough current to burn both headlights brightly. But by sending all the current directly to the left headlight it will burn brightly and give much more light than both headlights burning dimly.



Brightens One Headlight.

The original wiring is left intact. A wire is tapped into the light circuit just back of the dash and on the wire leading to the right head lamp. Lead this wire down under the floor boards to a point at the left of the pedal plate. Bore a hole here for the wire to come up through. Leave about two inches of wire for making connections. Lead a wire from this point to a point on the wire leading between the headlights. Tap in this wire at a point near the left headlight. Where the two wires pass up through the floor boards, attach a push button. Use a button on the style of a horn button. When driving at night slowly all that will be necessary is to put the toe of the shoe on this button. The left light will show brightly, giving you a good driving light at slow speed. Care must be taken, however, to remove the toe from the button when accelerating speed.

ON VULCANIZING.

In vulcanizing casings, which it is not always necessary to remove from the wheel, three layers of cement should be applied, each one being allowed to dry. The cut should be filled not quite level with the surface with scraps of rubber supplied for the purpose. If the hole is filled too full the rubber is likely to expand and run over the surface which has not been prepared and this thin film will soon peel off. When fixing a sand pocket care must be taken to fill the hole where the sand found entrance, which may be a foot away from the pocket as finally developed.

STARTING IN AN EMERGENCY.

When the starter is not working and the crank handle cannot be found it is possible to start the engine by jacking up the rear wheels and shifting into high. The cylinders must be primed and the spark and throttle levers set. The engine is started by turning the rear wheel, taking hold of the tire rather than the spoke. Care should be taken to avoid getting caught when the wheels start to revolve.

Now is the time to overhaul the car and see that it is in good running condition for the coming season.

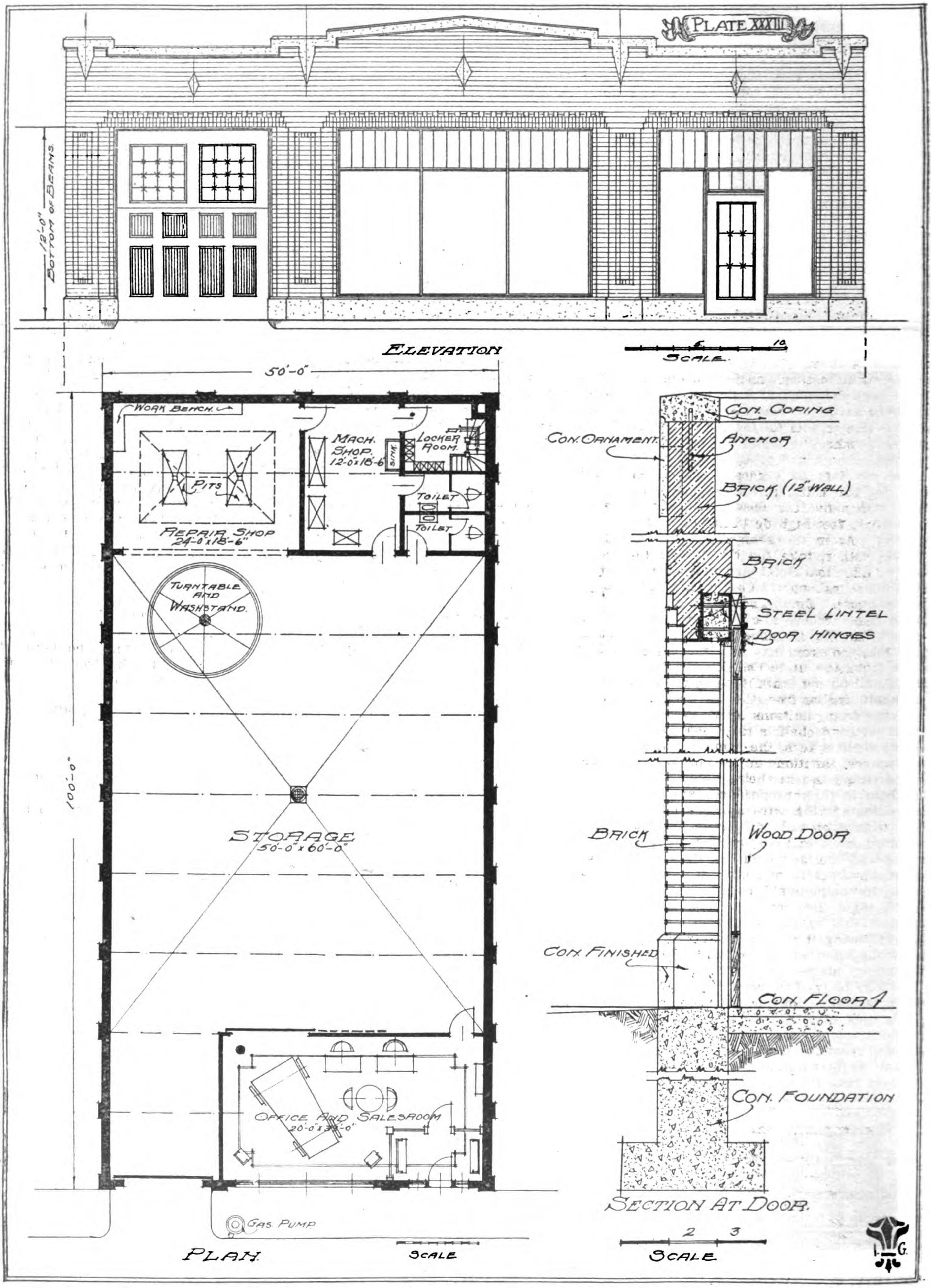


PLATE XXXIII
12'-0" BOTTOM OF BEAMS
ELEVATION
SCALE
6
10
50'-0"
100'-0"
WORK BENCH
MACH. SHOP. 12-0"x18-6"
SINK
LOCKER ROOM.
TOILET
TOILET
PITS
REPAIR SHOP 24-0"x18-6"
TURNTABLE AND WASHSTAND.
STORAGE 50'-0"x60'-0"
OFFICE AND SALESROOM 20'-0"x33'-0"
GAS PUMP
PLAN.
SCALE
CON. COPING
CON. ORNAMENT
ANCHOR
BRICK (12" WALL)
BRICK
STEEL LINTEL
DOOR HINGES
BRICK
WOOD DOOR
CON. FINISHED
CON. FLOOR
CON. FOUNDATION
SECTION AT DOOR.
2
3
SCALE
I.G.

PLATE XXXIII.

MODERN SERVICE STATION AND SALES ROOM

One-Story Building of Fireproof Construction Is Suggested for Average Dealer—Cost Reasonable with Accommodations Adequate.

Designed by the Architectural Department of the Automobile Journal Pub. Co.

NOW that building operations, abruptly halted by the war, are to be resumed, the Architectural Department returns to its place in the Accessory and Garage Journal. The accompanying sketches illustrate a few of the features embodied in the layout of a modern service station and salesroom. Such a building as herein suggested is intended for the average dealer, as its cost could be within his reach and the accommodations adequate for the needs of his business.

Fireproof Construction.

The structure would cover an area of 50 by 100 feet, the size of an ordinary city lot, and usually the only size obtainable in a desirable location. Our aim is to point out how compact, yet serviceable, a garage of this type can be made.

The plan is that of a one-story building of fireproof construction. The office and salesroom, shown in the forward part of the building, would be sufficient for the requirements of the average dealer. Flanking the office on the left is the entrance leading to the storage compartment, which is 50 by 60 feet, and which will house a considerable number of cars.

In the rear will be found a repair department, 24 by 18½ feet, having two pits to permit working on two cars at one time. This department could be well lighted by a large skylight, also affording ample ventilation.

Next we have the machine shop, the heart of the service station. Without such a place no station can give the service demanded in these modern times. Delay that would result in securing new parts could be saved by having the parts repaired on the job, or new ones turned out if necessary. The machine shop is so important that the dealer makes a mistake when he fails to provide for one.

Machine Shop.

The machine shop as shown in this plan would be 12 by 18½ feet, having room for a lathe, a punch, an emery wheel and a forge, also an anvil. A large sink is another feature. Provision is made for two toilets, one for the shop and the other for the office employees, and in these there would be modern lavatories with hot and cold water.

General Construction.

On the ground floor is a locker room for employees' clothing. A stairway leading to the boiler room occupies a portion of this room, as indicated in the plan. The boiler room is located underneath the space covered by the machine shop, toilets and locker room, and is 23 by 18½ feet. Special attention should be given to the location of the washstand and turntable, and the arrangement of them as this plan suggests will be found an advantage to all concerned.

The general construction is as follows: Foundation, concrete (see section); walls, 12 inches thick with 16-inch piers, and may be made with brick or cement blocks; main or front elevation designed for brick with concrete trimmings; steel beams used to support the roof, which is of plank covered with tar and gravel; floor four inches of rough concrete with two-inch dressing drained as shown.

Lighting would be furnished by large skylights in the roof, but which are not shown in the plan. A special feature would be a large door of wood automatically operated, being hoisted to the ceiling. The metal window sash shown adds much to the general appearance.

Cost of Building.

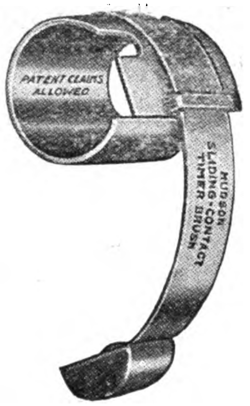
The cost of the building would be approximately $7500, equipped as shown. Any further details desired will be supplied on application to the Architectural Department of the Automobile Journal.

The plan presents many features that should prove valuable for a service station and salesroom, and the dealer who is contemplating the construction of a building to be used for such purposes will probably find it decidedly profitable to give careful consideration to these sketches. Of course, many variations could be made in the details and still the general plan followed.

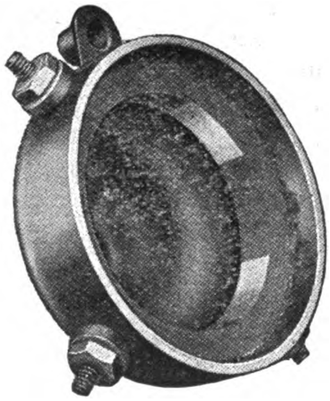
The Architectural Department is having prepared plans for various types of buildings suitable for the use of those engaged in the automobile industry. Readers of Accessory and Garage Journal are invited to write to this department for additional information in regard to any of these plans.

ACCESSORIES, EQUIPMENT AND TOOLS FOR THE GARAGE AND REPAIR SHOP

Hudson "Sliding Contact" Timer Brush. The patented Hudson "Sliding Contact" Timer Brush, with the film of ever present oil between the nub and contact bed, glides smoothly and certainly around the commutator and, as is only natural with a non-rotating body, it pushes whatever (dust) may be in its path out of the way and of a consequence automatically keeps the entire circumference free and clear of everything except only that amount of oil necessary to reduce wear to a minimum.



It is a known fact that if oil or grease is kept free and clear of dust it will automatically flow to the point of greatest action, and, as the greatest action is between the contact bed and the nub of the patented Hudson "Sliding Contact" Timer Brush, the lubrication by reason of no dust is always pure and working at its highest efficiency.



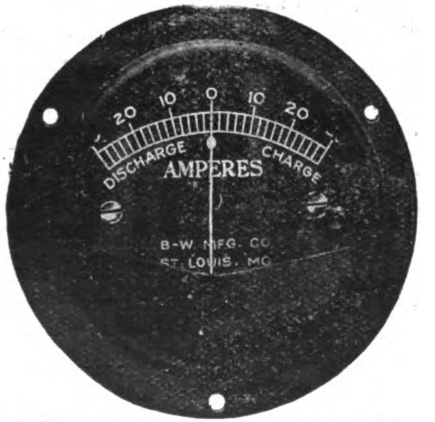
Manufactured by the Hudson Motor Specialties Co., 1932 Arch St., Philadelphia. Price, 60 cents.

Garage Safe. The Lazarus Manufacturing Co. has added to its line of safes a new model, styled F No. 9, which may be used in the garage, store or in the home. The safe is 16½ inches high, 12 inches wide and 13½ inches deep, and weighs 125 pounds. The walls are two inches thick.

The manufacturer states that the safe is filled with a fire-resisting composition. The steel walls and interior compartments are electrically welded, rendering them fire and thief proof.

Manufactured by the Lazarus Manufacturing Co., 770 Prospect Ave., Cleveland, O. Price, $25. Catalogue on request.

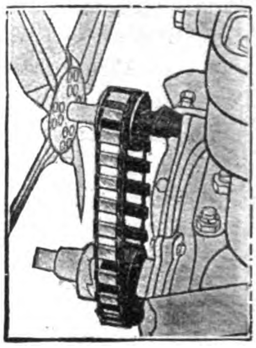
B-W Ammeter. Because the manufacturers of automobiles realize the importance of an ammeter in the electrical equipment, most modern machines are being fitted with such a device to indicate the passage of current to and from the battery. Many of the older machines do not have such a device, however, and, where posible, it is advisable to install one. The B-W Ammeter has a case of drawn brass, either nickeled or finished in black rubberoid. It is supplied in either surface or flush type. The glass is held in place with a special baked cement which the manufacturers claim will not crack. The movement is said to be practically vibrationless, that is, not effected by engine or rough road jars. It is of the permanent magnet iron vane type with no moving coils or fine hair springs.



All of the parts are of relatively large dimensions. The scale is of the usual etched metal finish and several different finishes are optional.

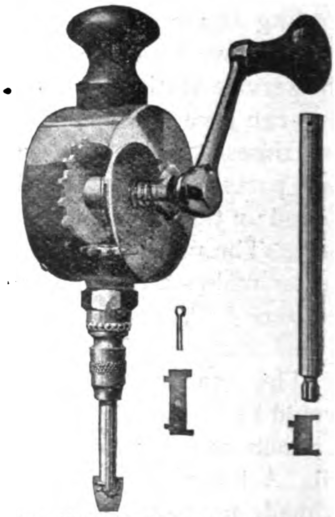
Manufactured by the Ballman-Whitten Manufacturing Co., 4060 Forest Park Blvd., St. Louis, Mo. Price quoted at request.

The Crow Mechanical Fan Belts are made up of links and containers which hold flat leather inserts. It is claimed that with this combination of steel chain and leather friction surface the belt is both flexible and has great gripping qualities. The manufacturers say that but little tension is required for maximum efficiency and that direct contact is assured at all speeds. The links are adjustable and removable, the leather inserts being slipped from the belt at the side, allowing the attaching or renewing of links as desired.

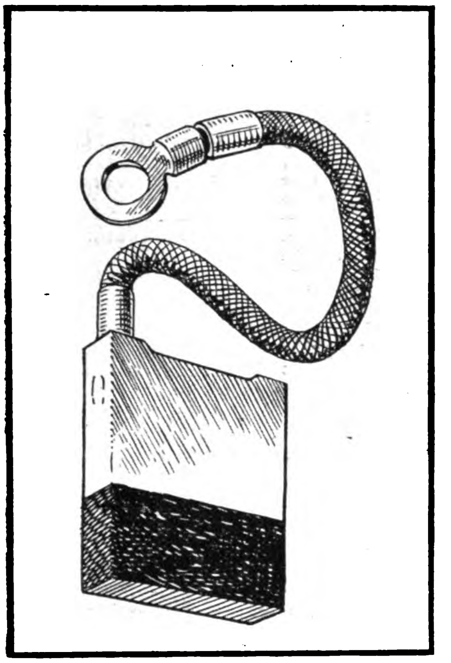


Manufactured by Mechanical Belt Co., 1202 Frederick Ave., St. Joseph, Mo. Price quoted at request.

The Sioux Valve Grinder consists of a handle or crank operated wheel which drives through suitable gears the grinding tool. The gears are so arranged that by a continuous turn of the crank the tool is given a reciprocating motion, always traveling slightly forward in one direction, then in the opposite, until the whole circumference has been made. With the tool are furnished three special valve head fittings and a special length of shaft for extension purposes. Prompt deliveries.



Manufactured by Albertson & Co., Sioux City, Ia. Price, $6.



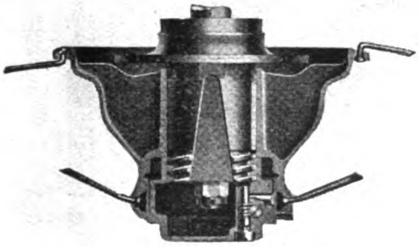
Brushes for Automobile Starting Motors and Lighting Generators. Too much care cannot be exercised in the selection of brushes for electric starting and lighting systems, for many of the troubles experienced by car owners are due to the use of the wrong grade of brush on the starter or generator.

In Ohio carbon products the composition of each type of brush has been determined only after tireless scientific research and thorough tests, both in the laboratory and actual service.

The replace brush business is growing by leaps and bounds. The Ohio Carbon Co. carries a complete stock of starting and lighting brushes at all times, assuring prompt service. The company has recently issued a car list and price sheet. The accompanying illustration is for the Simms-Huff motor generator. It is metal-graphite, ¾ by ⅝ by ¼ inch, top slot, cotton covered pigtail with ring terminal, used on Maxwell cars.

Manufactured by the Ohio Carbon Co., Cleveland, O. Write for car list and price sheet.

Kol-Ben, the Double Locked Wire Wheel. The illustration shows a sectional view of the Kol-Ben indestructible hub with the double-locking feature. One lock locks the other. All locking parts are chrome nickel steel, heat treated and hardened. Because of exceptional factor of safety this hub will resist the hardest use that can be made of it. The Kol-Ben wheel cannot run off or back off. The greater the centrifugal force the more secure is the lock.



Kol-Ben wheels are demountable. There are five to the set. One wheel, with its inflated tire ready for emergency, is carried as a spare. The complete change of wheels, in event of a puncture or blowout, is made in remarkably short time.

There is an absence of lugs, nuts, bolts and other loose parts. In the Kol-Ben wheel the movable parts are used only for locking and unlocking. Grease chambers are so designed and carefully packed with grease before leaving the factory that no matter how seldom the wheel is removed those moving parts are always well lubricated.

Great care is taken in the finishing process. The Kol-Ben enameling is done by special and elaborate equipment.

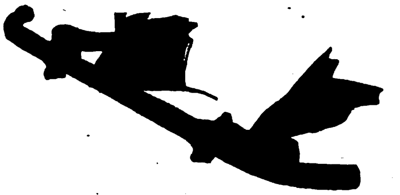
Manufactured by the Kol-Ben Wheel Co., Inc., Detroit, Mich. Prices quoted on

---

McGregor Bumpers. The McGregor series of automobile bumpers is intended to equip all makes of cars. The bumpers are made of strong and durable spring steel, are built for strength and service and are sold at comparatively low cost. The non-interfering splash pan attachment is a feature.

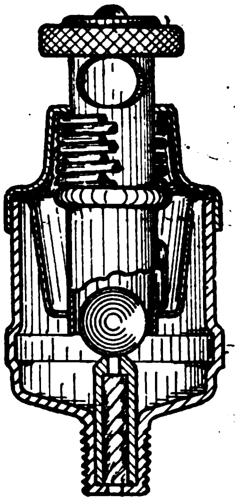
One of the series, the Combination Spring Bumper, is equipped with an all-spring steel arm, applicable to all cars with extended frame, both front and rear. The New McGregor Diamond Bar Bumper is adaptable to cars with or without splash pans. The design is attractive. The bumper can be quickly attached, no drilling of holes being necessary. McGregor's Special Rear End Bumpers give good service.

The accompanying illustration is that of Nos. 17-18. Nos. 10, 11, 12, 14, 15, 16, 17 and 18 carry the same design of arms, or fittings, the only difference being in the bars. McGregor's New No. 2 Bumper for Ford cars has universal fittings. It will fit any type of Ford and sells from $6 to $9.50. McGregor Special Bumpers are priced from $7.50 to $10; the Combination Spring Bumpers are $8 and $9; the New McGregor Diamond Bar Bumper, $10 to $12.50. Prices of other bumpers will be quoted on request

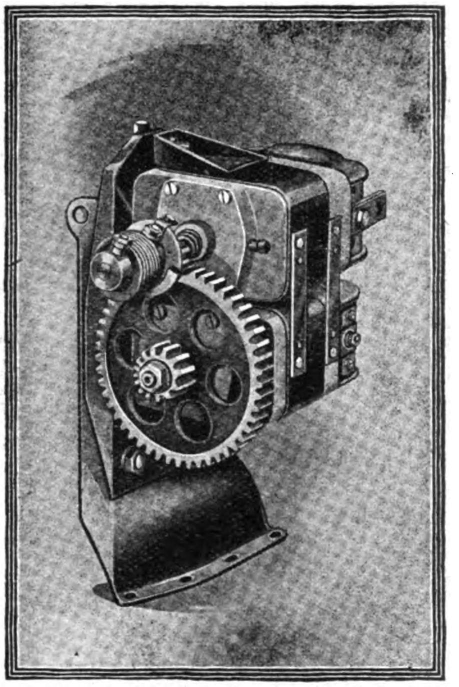


Manufactured by the U. S. Auto Bumper Co., 115 East 30th St., Chicago. Write for literature.

The Consol Automatic Oiler, which is automatic in operation and dirt proof, has many distinct features, fully protected by patents not heretofore used in any oiler. It is neatly made and comes in several styles and finishes. It absolutely prevents leakage of oil onto the bearing when the car is not in motion, for it takes the vibration of the car itself to upset a little ball valve which automatically controls the flow of oil from the cup. Already several automobile manufacturers have placed orders for these oilers, recognizing in same a distinct improvement over other oilers. The company is just starting the production on a large scale.



Manufactured by the Consolidated Machine Co., Detroit, Mich. Price quoted at request.



Gray & Davis Starting-Lighting System for Ford Cars. The double-unit system consists of a self-regulating dynamo, starting motor, battery and battery box, lighting and starting switches, sprockets, chain and wiring—in fact, all items necessary to make installation.

The dynamo is driven from a sprocket on the crankshaft by a silent chain of liberal width. It charges the battery automatically. The cutout keeps the circuit between dynamo and battery closed above eight or 10 miles an hour, and automatically opens the circuit when the speed drops below this average. The dynamo, through its inherent regulation, delivers a uniform current.

Located above the dynamo is the starting motor. Its meshing feature is unique. When the starting pedal is pressed the motor turns; the pinion or small gear automatically moves along the motor shaft until fully engaged with the dynamo gear when the motor cranks the engine. As the engine starts the dynamo gear is turned faster and automatically spins the pinion along the threaded shaft out of engagement.

The system is so simplified that there is practically nothing to get out of order. Both units are substantially constructed; the frames are forged from special dynamo steel. The end, or bearing brackets, are electrically welded to the frame.

The battery is of the six-volt type, especially designed for starting and lighting service. It is carried in an enameled steel box. It supplies current for cranking the engine, and for lamps at low car speed, as well as when the engine is at rest. The battery is automatically recharged by the dynamo when car is running.

The lighting switch, conveniently located on the cowl in front of the driver, controls the head, side and rear lamps, and also provides for dimming them. The starting switch is placed under the heel board, with the pedal projecting through it. A slight pressure on pedal causes the motor to crank the engine.

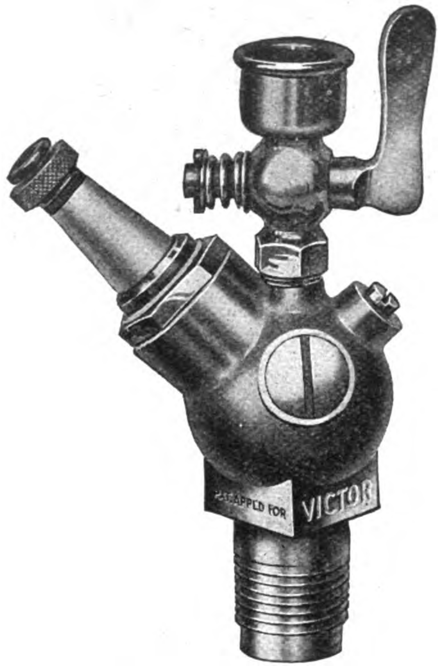
All wires and cables are cut to proper length and supplied with supporting clips and terminals to facilitate a neat installation. The only part removed from the engine to make installation is the pulley on the crank shaft (replaced by a sprocket). The starting crank may remain in its normal position if desired.

Distributed by Lalime & Partridge, Inc., 616 Commonwealth avenue, Boston. Write for literature and prices.

Victor Spark Plug. "The main point of difference between this and other plugs," says the maker, "is in the fact that we employ an external ignition chamber, and do not place our spark gap in the cylinder where it is fouled by oil and dirt and eventually becomes short circuited by soot or carbon and refuses to work.

"We are frequently asked if our plug does not work slower than those which are placed in the cylinder itself, due to the ignition taking place an inch or more away from the inside of the cylinder. Our answer is, it positively does not. It is particularly quick and snappy, due largely to the extremely explosive mixture of gas in the chamber."

By taking out the sight plug and using a screw driver on the adjusting screw, the spark gap can be readily adjusted while the engine is running without removing the plug. With a priming cup on the top of the plug, gasoline can be dropped directly on the spark gap, where it will do the most good. The priming device will particularly recommend the plug to users of Ford machines.

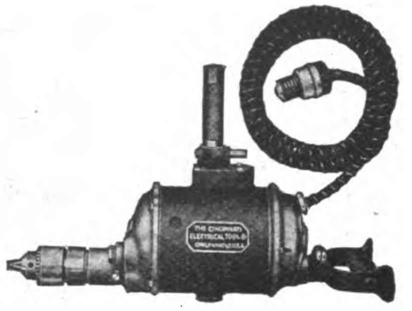


The plug, in addition to its use in automobiles, is adapted for use in kerosene engines, the non-sooting quality especially fitting it for such purpose. It also may be used in motor boats, stationary engines and airplanes.

Manufactured by the Victor Spark Plug Co., 250 Devonshire St., Boston. Price, with primer, $2; without primer, $1.75.

The Cincinnati Portable Electrical Hand or Breast Drill is made in ¼, ⅜ and ½-inch capacities. The drills are wound for alternating current, direct current and universal type for use with either direct or alternating current. In direct current the standard tools are wound for 110 and 220 volts, but they are also wound for from 50 to 600 volts if required. The motor windings are fully enclosed, dirt and dust proof, and all working parts are protected.

A fan mounted on the armature shaft forces a strong current of air through the ventilation holes in the motor housing and end cap. The armature is made of the highest grade of electrical sheet steel. It is wound with special magnet wire, thoroughly insulated, to prevent short-circuiting or grounding. The field coils are form wound and of the highest grade of magnet wire, carefully taped, baked and insulated. The commutator is made of segments of hard drawn bar copper, insulated throughout with the best grade of amber mica.



The gears are made of special high-grade steel, and are heat treated and hardened, insuring durability and long life. They run in grease and are fully enclosed in the gear case at the chuck end of the motor. An aluminum plate separates the gear case from the motor housing, preventing oil and grease from getting into the motor windings.

High-grade annular ball bearings are used on both ends of the armature shaft. The chuck spindle is fitted with ball thrust bearing, reducing the friction load to a minimum. The outer race of the ball bearing that carries the armature shaft is held in place by a threaded nut and the inner race is locked to the armature shaft, so as to assure positive drive and to obviate all friction. The switch is entirely enclosed in a pocket on the side of the motor housing. It is the company's own special design, patented, and is operated through one of the side handles of the drill.

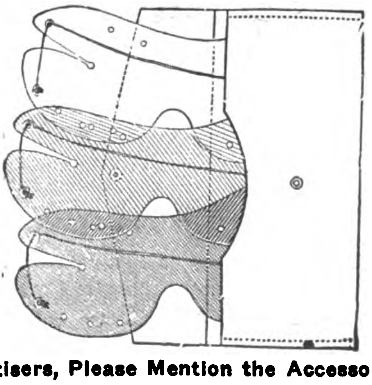
Drills of ½, ¾ and ⅞-inch capacities are made in single and two speeds. The speed is changed by shifting the wing nut, throwing the gears into high or low as desired, and can be changed while the drill is running. The carbon brushes are mounted in die cast brush holders. They are held firmly against the commutator by means of two springs pressing from the rear, insuring a perfect contact.

The side handles are of seamless steel tubing, knurled to give a firm grip. One operates the switch and the other handle is detachable when close corner drilling is desired. All drills are sent out well lubricated. Grease cups are provided for the spindle bearings.

The motor cap at the handle or screw feed end of all drills contains no electrical connections or mechanical parts, and is made so as to relieve the armature and bearings of all friction load and pressure. This is accomplished by fitting the cap over the special designed combination brush holder and ball bearing support. All electrical connections are made from the brush holder, which also supports one end of the armature spindle.

Manufactured by the Cincinnati Electrical Tool Co., Cincinnati, O. Prices quoted at request.

Featherweight Eye Protector. A convenient and clear vision eye protector with a number of practical points in its favor is illustrated. This device is made of a flexible material and after being worn a few times fits itself to the face, making it comfortable. It is fitted with adjustable elastic cords and is both strong and sanitary, having no absorbent edges to catch the dirt. It may be conveniently carried in a hand bag with no danger of breaking. The device may be purchased in envelopes with two in the package or in a strong wallet as illustrated, containing three of assorted colors, white, amber and green.



Manufactured by Jay & Dee Specialty Co., 1127 Bedford Ave., Brooklyn, N. Y. Price for envelope of two, 25 cents; wallet of three, 50 cents.

Old Sol Automobile Roadlights. In the Old Sol series the dealer has a model to fit every customer's needs. Model No. 70 is popular with motorists. It is a very powerful searchlight, with seven-inch door. The regular equipment includes central beam bulb controlled by "on" and "off" switch in handle, focusing device integral with switch, Universal bracket fitting all windshields, straight or tapered four-inch adjustable diminishing mirrorscope and four feet of duplex cable.

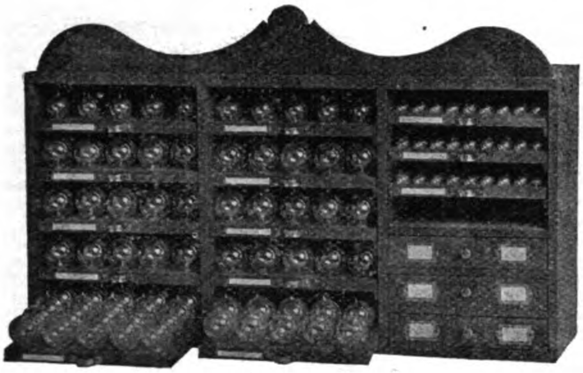
OLD SOL
Nº 70

Model No. 77 is practically the same as No. 70, but a little smaller. It has a six-inch door and a three-inch diminishing mirrorscope, also the universal bracket, adjustable to fit all windshields, straight or tapered. It is equipped with switch and focusing device in handle. It is a handsome light, beautifully finished in black enamel, with highly polished genuine silvered reflector.

OLD SOL
Nº 77

Old Sol display stands are unusually attractive and make many sales for Old Sol dealers.

Manufactured by the Hawthorne Co., Grassmere Ave., Bridgeport, Conn. Prices, model 70, $8; model 77, $6.50. Write for information regarding other models and prices.



Miller Brothers Electric Bulb, Fuse and Brush Cabinet. This is for automobile supply dealers, electric supply dealers, hardware dealers and garages. The cabinet has been designed with a view of a more efficient and convenient method by which bulbs, fuses and brushes, etc., can be properly displayed and handled with the least possible chance of breakage by falling from loose, cheap cartons.

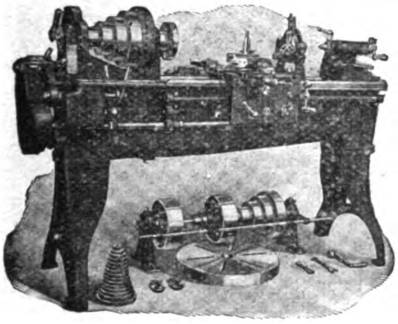
It meets a long looked for arrangement for the safe method of handling electrical equipment for every known car of American manufacture now in service. It is built of a fine quality of seasoned lumber, and is finished on both sides, making a handsome appearance, and can be attached to the wall or arranged on a stand or case. The cabinet is finished in mission.

The cabinet has a capacity of 200 "G" 12 or "G" 16½ bulbs, sufficient headlight bulbs of the various voltage and candlepower for all the cars in use. The dash and tail lamp compartment will accommodate 243 bulbs. The cabinet has 24 separate compartments, which will carry a complete line of all the fuses used in 106 different makes of cars.

A convenient arrangement is provided for carrying an assortment of starting motor and lighting generator brushes, which are all catalogued in their proper compartments. For the convenience of the retailer, each cabinet comes equipped with a copy of the latest catalogue of electric bulbs. A table of fuses used in 106 different cars, and a catalogue covering the complete assortment of starting motors and lighting generator brushes.

Manufactured by Miller Brothers, Lewisburg, Pa. Price $12 f. o. b. factory.

The Sliding Extension Gap-Lathe is capable of handling a wide range of work. It is provided with six quickly changed gear feeds and an extra large spindle. All the gears are covered with safety guards. The bed of the lathe is well braced and accurately proportioned throughout. The top sliding bed and main bed are planed full length and fitted together with dovetail construction. A screw and crank at one end draws the bed back when it is desired to widen the gap between the centers. Fair deliveries.



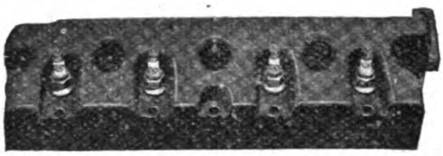
Manufactured by the Barnes Drill Co., 814-30 Chestnut St., Rockford, Ill. Prices, 5½ foot lathe, $650; 7½ foot, $700 f. o. b.

Fire-Gun. The Fire-Gun is a hand fire extinguisher that is effective for gasoline, oil or electric fires. It is a liquid pump that is double acting from the first stroke until it is empty, overcoming the great defect in extinguishers that are only double acting when nearly full. It holds 25 per cent. more fluid than most extinguishers.

The Fire-Gun fluid is effective where water is useless. The maker claims it will not deteriorate, is a non-conductor of electricity, does not freeze at 50 degrees below zero, and will not damage machinery or delicate fabrics.

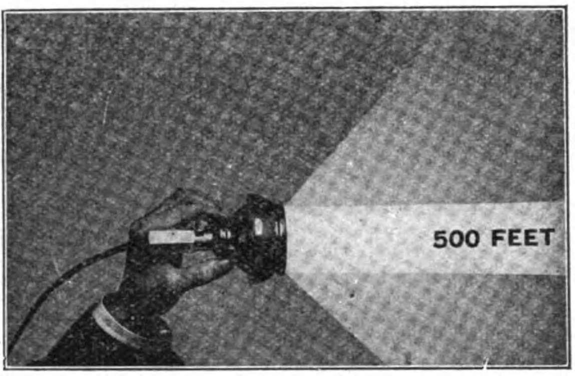
Manufactured by the Fire-Gun Manufacturing Co., Inc., New York. Prices: No. 1, capacity 1¼ quarts, $12; No. 2, capacity 1¾ quarts, $16.

Hudson Type Cylinder Head. A new cylinder head for Ford cars has just been put on the market which should be an interesting fitting for Ford owners desiring to secure more speed and better combustion. This cylinder head, which may be interchanged with the standard Ford head in but a short time, is built of cast iron and constructed with an extra large water jacket holding approximately half a gallon more water than the standard head. The water jacket completely surrounds the spark plugs, thereby keeping them cool at all times. It is said that better water circulation is secured because of the increased water passage size. The largest part of the combustion chamber is directly over the valves, while the inside is perfectly smooth.



It is said that with this new cylinder head there is a noticeable increase of power, and that there is a saving of fuel.

Manufactured by Green Engineering Co., 34 S. St. Clair St., Dayton, O. Price quoted at request.



"Franco" Cellbeam Concealed Spot Lamp is a radical departure from conventional types of spot lamps in that instead of being used clamped to the windshield it is carried in the hand.

The device projects a concentrated beam which extends 500 feet in a straight line and a diffused glow which illumines near by objects at a greater angle. It is fitted with a six-volt nitrogen bulb and silvered reflectors. The exterior is finished in polished nickel and the handle is fitted with a focusing adjustment.

With the device is furnished eight feet of flexible cord, which is connected with the battery in the usual manner, making an excellent "trouble lamp." The size is so small that it may be carried in one of the door pockets.

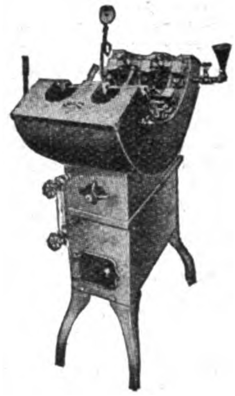
Manufactured by Interstate Electric Novelty Co., 104-114 South Fourth St., Brooklyn, N. Y. Price, $6.

Type E Cavity Retreading Outfit. The Akron Rubber Mold and Machine Co. has just brought out a new cavity retreading outfit, operating on the same principle as the regular cavity vulcanizer used for repairing casing punctures and blowouts.

This outfit with self-contained steam boiler (type E) can be purchased for much less than a retreading kettle and separate steam boiler, the use of large and expensive retreading kettle outfits being unnecessary since the development of the cavity retreading outfit.

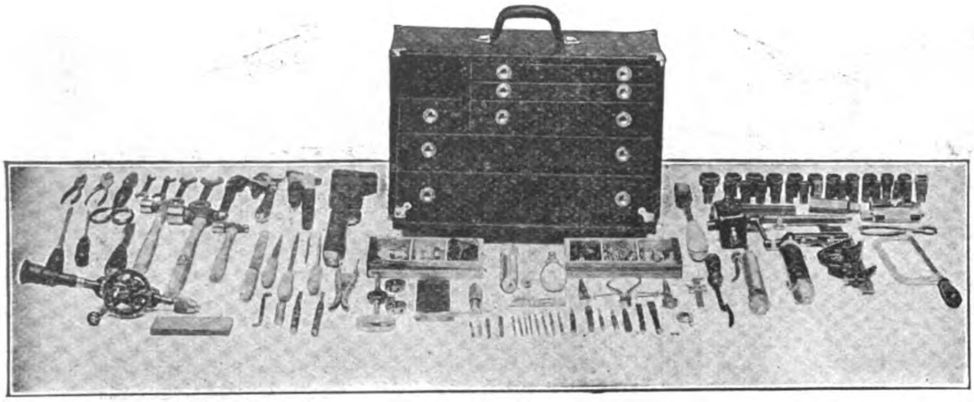
The quality of work turned out with this outfit is said by the manufacturer to be fully equal if not better than work done by the kettle process, a number of the outfits having been in daily service by the big rubber companies for the last eight or nine months with the best of satisfaction both as to quality of results and convenience of operation.

With the type E outfit one-third of the tread is vulcanized onto the old tire carcass at a time, the entire tread being accomplished in three operations. The elaborate and time consuming system of wrapping the tire required in the kettle process, is entirely dispensed with; the complete retread on an individual tire being accomplished as quickly with the cavity outfit as with the kettle.



The specifications are: Two-cavity outfit with self-contained steam boiler; cavities 4½-5inch and 3½-4 inch, the latter fitted with a reducing shell for taking 2½-3 inch sizes; made in one-third circle; cavities fitted with ribbed tread, with provisions for accomplishing plain tread by means of steel or special composition strips fitted into cavity; made with either gas or gasoline fittings; outfit includes steam gauge, water gauge, safety valve, two iron bars and eight clamps for holding tires in place, wrench, etc.

Manufactured by the Akron Rubber Mold and Machine Co., 945 Sweitzer Ave., Akron, O. Write for full particulars and prices.



"Union" Garage Chest for Auto and Truck Mechanics and Owners. In addition to its great capacity, the "Union" Garage Chest is conveniently arranged, as the two small top drawers are fitted with moveable partitions for small parts and for delicate instruments such as battery gauges, etc.

The third long drawer from the top is designed to hold a complete set of socket wrenches of any make, while the last drawer becomes a till when removed from its place in the chest and which may be carried about the garage by means of a telescoping handle.

The frame is of thoroughly seasoned, properly kiln dried, selected oak. The frames are lock cornered and glued, making the strongest possible corner joints. The backs of the chests are rabbited or shouldered to the frame, as well as glued and nailed. The frame of a Union does not weaken or loosen.

The bottom compartment is a tray made of solid oak throughout, fitted with a handle which drops down into the drawer when not in use. The tray corners are lock cornered and the bottom is protected by metal corners.

In the drawers the sides are of hard wood. The front is of selected oak, the bottoms thick three-ply veneer. Two small drawers are fitted with moving partitions. One long drawer is partitioned to hold a socket wrench set. The drawers are extra long, but light. The fronts are locked to the sides with double lock joints. The three-ply veneer bottom is tongued to the sides and fronts, making it much stronger and better than a thin solid bottom.

In the drawer pull the Union's own design of flush ring pulls save space and only the use of a finger is needed to open a drawer. The ring is flush with the drawer front and cannot pull off.

The drawers run on slides, these slides being made of hard wood and inset in the sides of the case. They will bear any weight.

The handle is covered with heavy, genuine leather, and has heavy steel wire through the center. The loops, secured by rivets (not screws) carry weight and cover the ends of the handle, which is attached to the chest with heavy cotter pins, preventing its being pulled out of the loops.

The hardware is extra heavy with polished nickel finish. The lock is a Sargent & Greenleaf, 100-key change, solid brass and bronze, with two, milled slot, flat, rust proof keys.

The outside finish is filled, stained, shellaced and varnished. The color is glossy black, which will not show finger marks and may be easily cleaned. The finish is oil and water proof. The entire inside of the frame and each drawer is finished with an oil proof and water proof preparation.

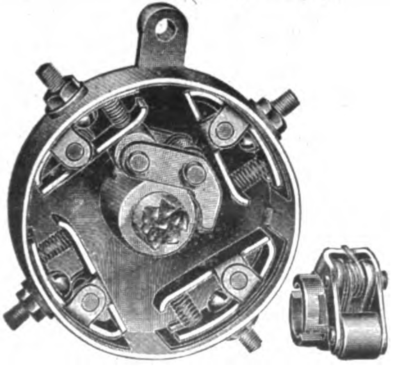
The outside dimensions are: Length, 20¼; width, 9¼; height, 13¼, and approximate weight is 23 pounds.

Manufactured by Union Tool Chest Co., Inc., Rochester, N. Y. Price, $14.25.

Bay State Commercial Timer for Ford Cars. The Bay State Pump Co., in introducing the Bay State Timer, states: "In presenting the Bay State Timer to the public we do so with complete knowledge of the troubles that have heretofore been experienced with other timers for Ford cars, and with the belief that we have entirely eliminated those troubles.

"It is unnecessary to go into minute details as to the whys and wherefores of the defects of timers of the past, as every repair man who has had experience with Ford cars knows where the trouble lies.

"The cut shows at a glance all construction. Note the contact and brush. Steel against steel all the way round, and all these parts hard as glass. Hardly necessary to say that they will wear longer and more even than steel against fiber.



"Remember what the arcing or burning of the current does to the contact track in the regular type. In the Bay State Timer the arcing occurs at the bent ends of the contact—where it can do no harm. No fiber or soft steel contacts here to burn and get humpy.

"In this timer complete resilience of contact is obtained by making both the brush and the contact yielding. This construction results in smooth, even, quiet action, and in perfect adaptability to any possible eccentricity of the timer shaft—a feature of utmost importance.

"There are no humps and no hollows in this timer after thousands of miles of running."

Manufactured by the Bay State Pump Co., 100 Purchase St., Boston. Price quoted on request.

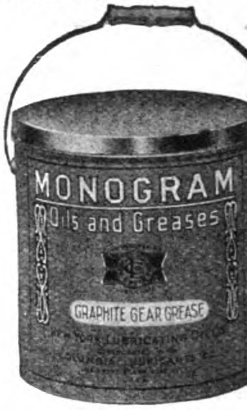
Monogram Oil. De Palma driving the Packard Twin-Six with which he smashed the world speed record used Monogram Oil. The New York Lubricating Oil Co., maker of the Monogram products, also takes pride in the fact that a great number of famous races were won by drivers who pinned their faith in Monogram for the lubrication of their machines.

The Monogram products are backed by a strong service. Tables have been prepared to show what grades of Monogram oils should be used on various models of automobiles. The products include light grades, medium, heavy, extra heavy, Knight Motor, Non Liquid and Transmission oils.

The company points out that some garages fail to handle Monogram oils and greases because they are not satisfied with a fair profit, but prefer to sell inferior products that will give them an unreasonably large margin of profit.

MONOGRAM
Oils and Greases
MEDIUM
New York Lubricating Oil Co.

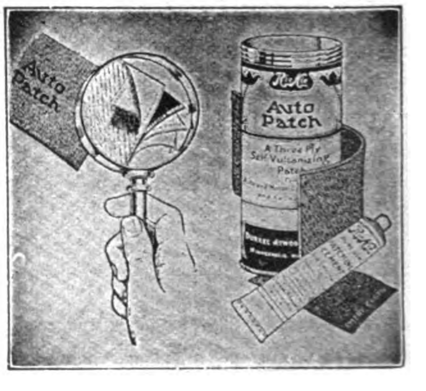
Monogram Steel Drums are manufactured in 15, 30 and 55-gallon sizes, and are very convenient containers. Each drum is fitted with an easy turning faucet, permitting a person to draw the exact amount of oil required.



The maker of Monogram manufactures "a scientifically prepared lubricant for every purpose."

Made by the New York Lubricating Co., New York City. Branches in principal cities. Prices on request.

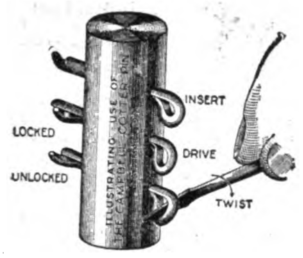
Rie Nie Auto Patch. Something new in the way of tire patches is being marketed under the trade name Rie Nie Auto Patch. This patch is made up in a special way. A layer of cured rubber is placed between two layers of especially prepared raw rubber. One side is covered by a layer of fabric which adds to the strength and wearing qualities of the patch. This construction makes a four-ply patch, which may be applied without the use of special tools or heat. This patch is covered by a broad guarantee by the manufacturer, who says that the smallest puncture or the largest blowout may be mended satisfactorily.



Manufactured by Durkee Atwood Co., Minneapolis, Minn. Price for small size (36 square inches), 50 cents each; for large size (108 square inches), $1.

Campbell Hammerlock Self-Spreading Cotter Pin. The Campbell Self-Spreading Cotter Pin is economical and practical, and is especially adapted for quick repairs on automobiles. All operations being done from the eye end, the pin may be easily locked in places where points are inaccessible to spread in the manner necessary with the old type. All points are close together and well tapered. Pliers are unnecessary.

To lock, merely drive on the head until the points are of equal length. This will partially flatten the eye and will force the shorter or straight branch forward so that its end will ride up over the upturned point of the other limb, thus automatically spreading as well as locking the pin rigidly in place.



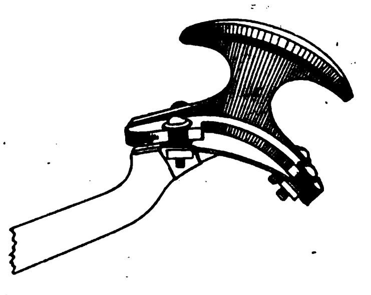
To remove, use point of screw driver, the tang of a file, a key, or any thin tool in the eye, twisting to return the short shank to its original position. Then remove with the fingers.

In addition to being used with its self-spreading feature, the Campbell Hammerlock Self-Spreading Cotter Pin may also be used in the same manner as the ordinary cotter pin. When so used, it is much easier to spread than the ordinary pin because one point extends beyond the other.

The pins may be used over and over again.

Manufactured only by American Chain Co., Bridgeport, Conn. Prices quoted on request.

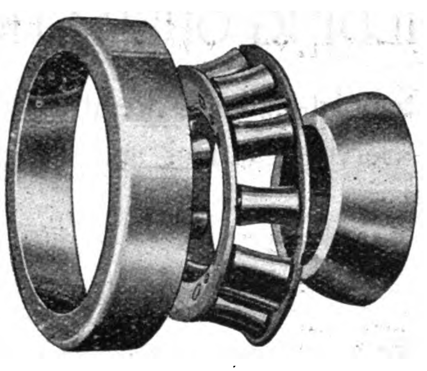
Easy Back Pedal for Fords. This is an extension for reverse pedals that is designed to make backing of Ford cars easier and safer. It serves as a foot guide when driving at night or in heavy traffic, and does not interfere with the use of the regular pedals. It is made of iron and is indestructible. The device is especially helpful to women drivers. It can be attached in a few minutes. The only tool needed is a screw driver, there being no drilling or special work to be done. It is held in place with four bolts and two clamps, which are furnished with each pedal.



Manufactured by Ellis-Smith Manufacturing Co., Inc., Elmira, N. Y. Price, 75 cents.

Shafer Roller Bearing. Departing from the usual type of roller bearing design, the Geo. D. Bailey Co., maker of the Bailey Ball Thrust Bearing, has placed on the market a front wheel bearing for Ford and Chevrolet 490's under the name Shafer Roller Bearing, designed to eliminate the chief source of front wheel bearing trouble, namely, the inability to take a heavy thrust (sideway) load without damage to the bearing and take care of axle spindle deflection as well.

The outer surface of the inner cone is convex, having the contour of a perfect ball, and the rollers possess a concave surface, thereby forming a cradle as it were for the cone and allowing it to swing to meet any deflection of the spindle when it gets out of alignment. The cone being free to move with the spindle and the load being taken upon the full length of the rollers causes no strain or binding of bearing itself as in the case of the rollers of a bearing the cone of which is held perfectly rigid and cannot meet the misalignment or deflection of spindle.



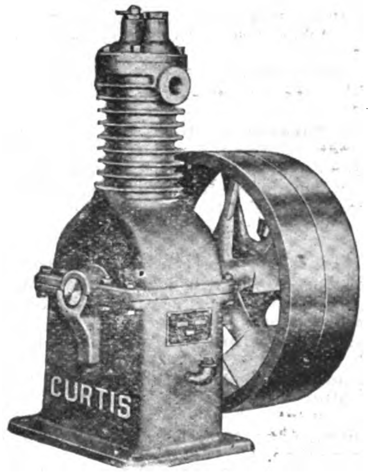
The concave surfaces of the rollers at all times present equal load carrying surfaces both from the side as well as the top and therefore the bearing is able to carry thrust (sideway) loads equally as well as radial (downward) loads. This feature in itself is a distinct departure and, it is claimed, permanently stops the real source of front wheel bearing trouble.

Nothing but the highest grade chrome nickel alloy steel is used throughout. This fact, coupled with three years of most severe road and breakdown tests, enables the maker to guarantee every Shafer bearing without reservations.

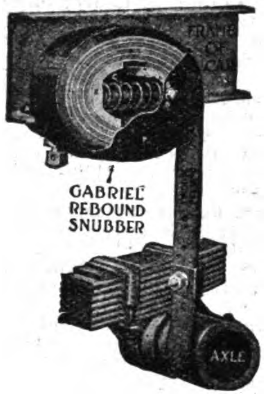
Manufactured by the Geo. D. Bailey Co., 1120 South Michigan Ave., Chicago. Prices quoted on request.

The Curtis Air Compressors for garages and service stations are said to possess exclusive features of unquestioned merit and are guaranteed by the manufacturers who have manufactured pnuematic machinery for over 25 years to furnish a continuous supply of cool, pure, clean air, free from oil. In the Curtis compressors the oil leakage into the cylinder has been overcome by their patented control splash oil system, which regulates the oil supply, permitting only enough oil to reach the cylinder to lubricate it without leaving any excess that can be carried into the discharge line. The result is that practically no oil can get into the tires to rot them and it is claimed that the compressor will run on one-tenth the amount of oil ordinarily required by a splash oil compressor. Handled through the jobbing trade exclusively.

Manufactured by Curtis Pneumatic Machinery Co., 1621 Keinlen Ave., St. Louis, Mo. Price quoted at request.



Gabriel Snubber. No car is considered up to date without some form of shock absorber, either as an accessory or incorporated in the design. The Gabriel Snubber is an accessory shock absorber which is designed to protect the car by the elimination of vibration, to prolong the life of tires by keeping the wheels on the ground and giving traction. They are easily applied upon practically any car now on the market. When ordering mention the name, model and year of car.



Manufactured by Gabriel Manufacturing Co., Cleveland, O. Distributed in New England by W. J. Connell Co., 171 Massachusetts Ave., Boston, Mass. Price quoted at request.

Oilzum. The Oilzum motor oils and lubricants include a light bodied oil, particularly suitable for water cooled engines having close fitting pistons; a medium bodied oil, adapted for high speed V type engines; a heavy bodied oil, which may be used the year around and relied upon to flow in the coldest weather; a very heavy bodied oil, used principally for racing and suitable only for engines having great piston clearance; a smooth, heavy bodied dark oil for the lubrication of transmission and differential gears, also suitable for front gears if the cases are tight and separate from crank case; a high-pressure super-heated steam cylinder oil, compounded especially for steam cars; a semi-solid oil, which does not drip and waste like fluid oils, for lubricating sliding gear and planetary transmissions.

The Oilzum line also includes a smooth mineral grease for packing axles, ball and roller bearings, steering gears, universal joints and for all compression cups; a finely ground graphite and pure mineral grease for lubricating chains, brakes and circulating pumps, and which is not affected by contact with water, also used for packing axles, ball and roller bearings, steering gears; universal joints and for all compression cups; a very adhesive, stringy mineral grease of a particularly clinging nature for packing differential gears and transmissions, especially adapted for lubricating differentials and transmissions which are worn and noisy; a gear lubricant which is a successful quieter for timing gears.

THE WHITE & BAGLEY CO WORCESTER MASS U.S.A.
Oilzum
MOTOR OILS AND LUBRICANTS

Other products include Oil Soap, for cleaning varnished and painted surfaces, and Cleanzum, a hand cleaner.

Manufactured by the White & Bagley Co., Worcester, Mass. Write for literature and prices.

RECORD OF BUILDING OPERATIONS FOR APRIL

Contracts Made and Plans Contemplated for Alterations or Erection of Garages, Repair Shops, Service Stations and New Plants.

CONTEMPLATED PLANS AND SPECIFICATIONS.

Denver, Col.; I. J. Lehre; one-story garage, 50x125; $8000.

Bridgeport, Conn.; Samuel Greenbaum, 893 Hancock avenue; one-story garage, 50x140.

Hartford, Conn.; Sondik & Alpert, 92 Maple avenue; one-story garage and show room, 50x80; $9000.

Hartford, Conn.; Johnson-Webster Co., 327 Trumbull street; one-story garage, 20x60; $2500.

Hartford, Conn.; Robert & McKone, 131 Oak street; one-story public garage, 20x115; $4000.

New Haven, Conn.; Robert Reinwald, 1006 Dixwell avenue; one-story garage; $10,000.

New Haven, Conn.; Samuel Greenbaum, 893 Hancock avenue, and Joseph Kovacs, Bostwick Theater, Bridgeport, Conn.; one-story garage, 50x140.

New Haven, Conn.; Antonio Vanacoie, 147 Wooster street; one-story garage, 50x130.

Wilmington, Del.; Harry Papaloo; 14 one-story garages, 10x20 each; $4000.

Wilmington, Del.; James I. Ford, 704 Breene street; one-story garage, 20x30.

Washington, D. C.; U. S. Government, care J. C. Koons, first assistant postmaster general, 12th and Pennsylvania avenue, N. W.; one-story garage, 54x400; $60,000.

Washington, D. C.; Charles E. Bain, 914 14th street; one-story garage, 40x120; $10,000.

Chicago, Ill.; A. V. Tiesen, 3400 Fullerton avenue; one-story garage; $5000.

Chicago, Ill.; Schulzi Balling Co., 76 West Monroe street; one-story garage; $20,000.

Chicago, Ill.; A. L. Strahan & Son, 2209 63rd street; one-story garage, 50x100; $10,000.

Chicago, Ill.; Ogden Motor and Supply Co., 3858 Ogden street; one-story garage, 75x125; $20,000.

Decatur, Ill.; Amos Sheeler, 235 W. Wood street; two-story public garages, 65x105; $20,000.

Hoopeston, Ill.; Love & Richards, Wildon building; one-story private garage, 25x30; $400.

Oak Park, Ill.; H. Weymouth, 417 N. Ridgeland avenue; one-story garage, 75x140; $20,000.

Pontiac, Ill.; Pontiac Motor Car Co.; one-story public garage, 69x101; $25,000.

Staunton, Ill.; Glen E. Drubaker, Litchfield, Ill; two-story garage, 45x108.

Elkhart, Ind.; C. E. Frye, care R. L. Simmons, 125 Monyer building; one-story filling station, 36x41.

Elkhart, Ind.; W. W. Haynes, Haynes building; one-story public garage, 53x70.

Frankfort, Ind.; Miller & Helvie; three-story public garage, 66x132; $40,000.

Gary, Ind.; Carl Baker, care L. H. Warner, 527 Broadway; one-story garage and repair shop; $15,000.

Kokomo, Ind.; Fred Trees, 601 Walnut street; two-story garage, 25x25.

Burlington, Ia.; W. F. Welbely, Tama building; one-story private garage, 36x70.

Cedar Rapids, Ia.; J. K. Henderson, 1432 Sixth avenue; one-story private garage, 12x14; $100.

Davenport, Ia.; McCarthy Improvement Co., 220½ Main street; one-story storage garage, 40x80; $3000.

Sioux City, Ia.; W. E. Stevenson and W. E. Powell, 715 Sixth street; one-story garage, 20x50; $2000.

Clifton, Kan.; E. J. Turner; one-story garage, 46x100.

Larned, Kan.; Standish Motor Sales Co.; two-story garage, 50x140; $20,000.

Moundridge, Kan.; Unrush & Schlender; one-story garage, 50½x140; $15,000.

Peabody, Kan.; J. W. Musbaum; two-story garage, 100x150.

Baltimore, Md.; H. S. DeLaney, care Owens & Sisco, Continental building; two-story garage and servants' quarters, 30x30; $6000.

Baltimore, Md.; Edward J. Sorck, 623 Munsey building; one-story garage, 60x68; $8000.

Baltimore, Md.; Thomas Mullan, 4001 Greenmount avenue; 55 one-story garages, 10x18 each; $15,000.

Btltimore, Md.; W. W. Emmet, Union Trust building; one-story private garage, 20x22; $25,000.

Baltimore, Md.; Stanislaus Russell, Cordora apartments; one-story garage, 20x150; $15,000.

Boston, Mass.; Thomas H. Connelly, Roxbury, Mass.; one-story garage, 100x130.

Lowell, Mass.; Israel Greenberg, 110 Hale street; one-story garage, 78x140; $5000.

Melrose, Mass.; F. H. Bowden; one-story private garage, 24x43.

New Bedford, Mass.; Albert J. Boucher, 917 Country street; one-story public garage, 30x75; $5000.

New Bedford, Mass.; George N. Guerin; one-story public garage; $6000.

West Springfield, Mass.; J. Lane; one-story public garage, 60x70; $7000.

Worcester, Mass.; A. D. Houston; one-story public garage, 60x100; $10,000.

Detroit, Mich.; C. J. Talbot, 1232 McKinley avenue; one-story garage, 29x60; $2000.

Detroit, Mich.; Philips Seeman, 1205 St. Antoine street; one-story public garage, 55x171; $14,000.

Detroit, Mich.; Alfred J. Stecker, 34 Bates street; one-story garage, 26x66; $3000.

Detroit, Mich.; Standard Oil Co., 1025 Scotten avenue; one-story oil station, 13x24; $2000.

Detroit, Mich.; Jacob Schevitz, 195 E. Ferry avenue; one-story garage, 70x120; $20,000.

Ironwood, Mich.; C. J. Anderson; one-story garage, 80x125; $15,000.

Lindstrom, Minn.; Standard Oil Co., Fourth and Oak streets; Minneapolis; one-story filling station; $5000.

Lonsdale, Minn.; William T. Barton; one-story public garage, 40x60.

Madden, Minn.; Standard Oil Co., Fourth and Oak streets, Minneapolis, Minn.; one-story filling station; $5000.

Renville, Minn.; Standard Oil Co., Fourth and Oak streets, Minneapolis, Minn.; one-story filling station; $5000.

St. Paul, Minn.; P. O. Nasvik, 1368 Ashland street; one-story public garage; $10,000.

St. Paul, Minn.; G. L. Ossman, 773 Cherokee street; one-story private garage, 12x20.

St. Paul, Minn.; Solomon Paymar, 817 Payne avenue; one-story private garage, 12x16.

Cape Girardeau, Mo.; John T. Sackman; two-story garage, 54x100; $30,000.

Kansas City, Mo.; C. B. Sloan, 320 East 11th street; one-story garage, 51x54.

Kansas City, Mo.; W. F. Jackson, 1511 Lydia street; one-story garage, 28x31; $2000.

Kansas City, Mo.; Monarch Filling Station; one-story filling station at S. W. corner Admiral Boulevard and Lydia street; $2000.

Kansas City, Mo.; Edward Austin; one-story garage, 67x100; $12,000.

St. Joseph, Mo.; Standard Oil Co.; Ninth and Monterey streets; one-story filling station, 16x24; $3500.

Central City, Neb.; C. E. McDonald; one-story garage, 60x131; $17,000.

East Orange, N. J.; H. M. Fisher, 483 Bloomfield avenue, Montclair, N. J.; one-story private garage, 20x25.

Jersey City, N. J.; A. Orlachio, 616 Newark avenue; six individual garages, 19x50; $1500.

Newark, N. J.; Wensel Jerne, 865 Hunterdon street; eight individual garages, 40x40; $2000.

Newark, N. J.; Burgmeyer Brothers, 431 Passaic avenue; one-story garage, 27x70; $2500.

Newark, N. J.; Simon Beyer and Samuel Fishman, 711 15th South 14th street; one-story public garage, 100x100; $15,000.

Newark, N. J.; Samuel Hirsch, 191 Livingston street; one-story public garage, 30x100; $5000.

Newark, N. J.; Charles H. Bennett, Jr.; two-story auto service station, 100x200.

Newark, N. J.; George E. Jones, Union building; one-story public garage, 54x110; $15,000.

Paterson, N. J.; Landsburg Brothers, 102 Webster avenue; one-story garage, 50x58; $5000.

Trenton, N. J.; Frederick Barlow, 130 East Side street; two-story private garage, 20x50; $5000.

Trenton, N. J.; W. H. Hankins, 942 Carteret street; two-story public garage, 50x120; $30,000.

Trenton, N. J.; Castanea Dairy Co., 234 N. Broad street; one-story garage, 50x100; $30,000.

Wyckoff, N. J.; Herman Glomberg; one-story garage, 20x20; $4000.

Albany, N. Y.; Helen M. Dirslane, 890 Madison avenue; one-story garage; $2000.

Binghamton, N. Y.; Nathan Gilinsky, 20 De Russy street; one-story garage, 50x70; $3000.

Binghamton, N. Y.; George W. Lindsay, 69 Baldwin street; two-story garage, 44x75; $6000.

Brooklyn, N. Y.; Morrison-Allardyce Construction Co., 586 74th street; four one-story garages, 11x19 each; $200.

Brooklyn, N. Y.; M. Rosenberg and H. Greenberg, 551 Snediker avenue; four one-story garages, 16x17; $2000.

Brooklyn, N. Y.; Salvatore Guarini, 7428 15th avenue; one-story garage, 20x37; $2000.

Brooklyn, N. Y.; A. W. J. Pohl, 200 Montague street; one-story garage, 122x131; $25,000.

Brooklyn, N. Y.; Nicolo Lenzzi, 1251 66th street; one-story garage, 20x22; $1500.

Brooklyn, N. Y.; B. A. Realty Co., Inc., 1527 43rd street; one-story garage, 100x145; $10,000.

Brooklyn, N. Y.; Henry A. Lang, 1173 39th street; one-story garage, 28x40; $3000.

Brooklyn, N. Y.; Max Robertson, 1623 Pitkin avenue; one-story garage, 100x150; $35,000.

Brooklyn, N. Y.; William Von Felds, 2188 Metropoiltan avenue; two one-story garages; $29,000.

Brooklyn, N. Y.; Samuel Ageroff, 226 Reid avenue; one-story garage, 81x115; $20,000.

Brooklyn, N. Y.; Realty Supply Co., 215 Montague street; one-story garage; $35,000.

Brooklyn, N. Y.; Oscar Palmleaf, 54 Linden avenue; one-story garage, 22x22; $2000.

Brooklyn, N. Y.; J. Mahlan, 1410 Union street; one-story garage, 18x20; $11,000.

Brooklyn, N. Y.; H. J. Wolf Construction Co., 364 82nd street; 15 one-story garages, 10x17; $4500.

Brooklyn, N. Y.; David Siegel, 520 Powell street; four one-story garages, 16x17 and 16x18; $2000.

Brooklyn, N. Y.; Jacob Kallich, 371 Monroe street; one-sory garage, 20x20.

Brooklyn, N. Y.; Philip Realty Co., 249 Chester street; five one-story garages, 16x18; $2000.

Brooklyn, N. Y.; Henry Hemindinger, 363 Crown street; one-story private garage, 17x22; $2000.

Brooklyn, N. Y.; Louis Toy, 33 Hunboldt street; one-story garage, 36x50; $4000.

Brooklyn, N. Y.; Walter W. Deberoise, 163 Carlton avenue; three-story private garage; $18,000.

Brooklyn, N. Y.; Fred Ochse, 419 Sterling place; one-story garage, 22x45; $2500.

Brooklyn, N. Y.; P. Glickman, 1422 Pitkin avenue; one-story garage, 87x100; $10,000.

Brooklyn, N. Y.; Mt. Hass, 283 Stagg street; one-story garage, 22x25; $1,000.

Brooklyn, N. Y.; John Sachs, 26 Wallcott street; one-story garage, 17x43; $3000.

Brooklyn, N. Y.; Martha French, 1199 President street; one-story garage, 50x127; $20,000.

Brooklyn, N. Y.; Saba Construction Co., 715 E. 13th street; one-story garage, 80x105; $20,000.

Brooklyn, N. Y.; Simon Halperin, 1408 Lincoln place; one-story garage, 16x18; $6000.

Buffalo, N. Y.; Standard Oil Co. of New York, 26 Broadway, New York; one-story garage; $25,000.

Buffalo, N. Y.; Jacob Rich, 1453 Fillmore avenue; one-story public garage; $10,000.

Buffalo, N. Y.; Dry Dock Co., 225 Ganson street; one-story garage, 29x114; $9000.

Buffalo, N. Y.; Keenan & Keenan, 226 Powers building; two-story public garage, 100x120; $30,000.

Buffalo, N. Y.; Seyfreid & Poulsen, 185 Fox street; one-story auto repair shop, 40x88; $6000.

Douglaston Park, L. I., N. Y.; Thomas Brozier, 1½-story garage, 20x20; $1000.

Far Rockaway, L. I., N. Y.; H. Malcolm Gipson, 1297 Cornaga avenue; one-story private garage, 40x50.

Long Island City, L. I., N. Y.; C. Curtis Woodruff, 213 10th street; one-story garage, 75x100; $20,000.

New York, N. Y.; Philip Hanser, 4853 Carpenter avenue; one-story garage, 45x75; $8500.

New York, N. Y.; Max Grober, 41 Boerck street; one-story garage, 95x196; $30,000.

New York, N. Y.; Industrial School, 303 East 109th street; two-story garage, 50x99; $50,000.

New York, N. Y.; Benson Realty Co., 31 Nassau street; one-story garage and repair shop, 25x100; $6000.

New York, N. Y.; Louis Klesk, 40 West 11th street; one-story garage, 97x148; $30,000.

New York, N. Y.; Mrs. M. E. Dooling, care John J. Birchley, Woolworth building; two-story garage, 50x100.

Niagara Falls, N. Y.; Chester R. Phelps, Gluck building; one-story public garage, 66x132; $15,000.

Niagara Falls, N. Y.; J. W. Cunningham, 2214 Niagara avenue; one-story public garage; $8000.

New Rochelle, N. Y.; W. Kolbe; one-story garage, 50x100; $9000.

Ridgewood, L .I., N. Y.; Frank Albrecht, 1060 Wyckoff avenue; one-story garage, 19x20; $1200.

Ridgewood, L. I., N. Y.; Henry Glassman, 720 Palmetto street; one-story garage, 20x50; $1500.

Ridgewood, L. I., N. Y.; Louis Will, 586 Woodward avenue; one-story garage; $1500.

Rochester, N. Y.; William H. Foxall, 354 Westminster street; one-story garage; $2000.

Schenectady, N. Y.; Louis T. Van Standwood, 750 Brandywine avenue; one-story auto storage garage, 38x40; $4000.

Akron, O.; Mrs. J. Amons,, 366 S. Main street; one-story garage, 26x46; $2500.

Cincinnati, O.; Clifford Albert, 1745 E. McMillan street; one-story private garage, 20x21; $3500.

Cleveland, O.; J. L. Free Co., 1004 Prospect avenue; one-story public garage; $100,000.

Greenville, O.; Mrs. Ella St. Clair; one-story garage, 120x136; $42,000.

Linwerth, O.; Fred Sharer; one-story private garage, 22x22.

Struthers, O.; Steve Begla; one-story garage, 48x125; $6000.

Oklahoma City, Okla.; L. M. Rauch, 3017 Classen boulevard; one-story garage, 50x75; $7000.

Oklahoma City, Okla.; M. N. Gish, 1429 W. 38th street; one-story garage, 50x60.

Allentown, Pa.; Dave Levy, 938 Hamilton street; three-story public garage, 60x230; $50,000.

Bethlehem, Pa.; Francis C. Knouss, 29 South Ninth street; one-story private garage, 20x22; $2500.

Bethlehem, Pa.; Mrs. C. L. Hebron, 628 Turner street, Allentown, Pa.; one-story garage, 35x150.

Bethlehem, Pa.; L. O. Granley, 124 Northampton street; one-story public garage, 48x116; $10,000.

Carbondale, Pa.; Bartholomay Brothers, 41 N. Church street; three-story public garage, 75x99.

Clairton, Pa.; H. J. Bayne, 401 Third street, and R. G. Pittman, one and two-story commercial garages, 35x100; $15,000.

Conshohocken, Pa.; H. G. McMurtio, 1012 Walnut street, Philadelphia, Pa.; 1½-story private garage, 24x35.

Cynwyd, Pa.; S. R. Vandebeck, 20 South 15th street, Philadelphia, Pa.; 1½-story private garage, 18x20; $1500.

Duquesne, Pa.; Harry A. Zeigler, 11 Hamilton avenue; three-story commercial garage, 50x110; $4500.

East Maunch Chunk, Pa ; J. P. Bennyhoff, Lehigh Valley Station; two-story garage, 20x32; $5000.

Easton, Pa.; Frederick Jones, 1222 Northampton street; one-story public garage, 50x100; $10,000.

Grove City, Pa.; C. H. Welch; one-story garage, 60x116.

Hanover, Pa.; Robert A. Stair, Jr., 100 E. Market street, York, Pa.; one-story private garage, 26x41; $4000.

Harrisburg, Pa.; Dr. Charles S. Rebuck, 412 N. Third street; one-story private garage; $5000.

Latham Park, Pa.; Harry Schsemmeier, 141 N. Third street; 1½-story garage, 24x36; $4000.

Mt. Joy, Pa.; H. R. Barr; one-story public garage; $10,000.

New Kensington, Pa.; Bentz Auto Co., care W. Laughlin; two-story garage, 40x100; $12,000.

Northampton, Pa.; Stephen Cenchita; one-story public garage, 55x111; $10,000.

Philadelphia, Pa.; Ajan Metal Co., 46 Richmond street; one-story private garage, 55x115; $12,000.

Philadelphia, Pa.; A. J. Boglar, 5955 Spruce street; two-story garage, 100x115.

Philadiephia, Pa.; Abraham Sharp, 5237 Baltimore avenue; one-story garage and repair shop; $10,000.

Philadelphia, Pa.; J. E. Fieldstein, 1328 Chestnut street; one-story public garage, 100x125; $15,000.

Philadelphia, Pa.; Harry Fenton, 8000 C street; Fox Chase; one-story public garage; $10,000.

Philadelphia, Pa.; Louis Friedman, 510 Pine street; one-story garage, 50x150; $15,000.

Philadelphia, Pa.; I. W. Levin, 536 Ritner street; one-story public garage; $35,000.

South Bethlehem, Pa.; D. J. Pappano, 1401 South 13th street, Philadelphia; three-story garage and storage station; $25,000.

Aberdeen, S. D.; J. F. Jenkins, 312 South 14th street; one-story private garage, 12x20.

Arlington, S. D.; Stark & Banch; two-story public garage, 50x100.

Leola, S. D.; Kohlhoff Brothers; one-story public garage, 48x62; $3500.

Norfolk, Va.; Miss L. P. Shephard, 324 Hamilton avenue; one-story garage; $2500.

Norfolk, Va.; Fleshman Co., 423 Freemason street; one-story garage; $2500.

Portsmouth, Va.; Modern Architect Co.; P. O. Box 591; three-story garage; $30,000.

Portsmouth, Va.; Modern Architect Co., P. O. Box 591; one-story public garage, 55x127; $10,000.

Clintonville, Wis.; F. Goerlinger; one-story garage, 50x100; $10,000.

Grantwood, Wis.; Carl J. Sandquist; one-story garage, 40x100; $6000.

Milwaukee, Wis.; Milwaukee Western Fuel Co., 120 Wisconsin street; one-story garage, 117x133x30; $13,000.

Milwaukee, Wis.; A. G. Wolf; one-story garage, 50x80; $15,000.

Milwaukee, Wis.; Frank Kraining, 1147 Forest Home; one-story public garage, 50x106; $10,000.

Milwaukee, Wis.; Fischer & Zwicke, 1222 Chestnut street; one-story garage, 20x28; $1000.

Portage, Wis.; Andrew Slinger; one-story garage and shop, 120x150; $10,000.

Sayer, Wis.; Fitz Wagner, 1049 Oakdale avenue; one-story private garage, 28x28; $1500.

CONTRACTS AWARDED.

Denver, Col.; Brown & Schrepfiman, 309 Interstate building; two-story garage, 24x35; for E. C. House; $3000.

Hartford, Conn.; Ellison Construction Co., 60 Prospect street; three-story garage, 51x125; for John J. Roche Co., 830 Maple avenue; $25,000.

Hartford, Conn.; Samuel Martin, 41 Bethel street; one-story garage, 50x60; for H. Dargat, 340 Windsor avenue; $6500.

Hartford, Conn.; R. G. Bent & Co., 43 Ann street; one-story garage, 20x20; for William R. Bennett, 249 Fairfield avenue.

Wilmington, Del.; Steven Pardee, 1613 West 13th street; one-story garage, 40x60; $5000.

Wilmington, Del.; Carrol W. Griffith, 224 West Ninth street; one-story garage, 11x18; $3000.

Wilmington, Del.; Reed & Brothers, 815 Shipley street; three-story public garage, 41x109; $20,000.

Wilmington, Del.; Healy & Sons, Inc., 707 Fatnall street; one-story private garage; for Dr. Harold L. Springer, 1013 Washington street; $2500.

Chicago, Ill.; Dr. Otto L. Schmidt, 1546 Dearborn street, North; two-story private garage, 24x44; $4600.

Chicago, Ill.; J. O'Hanley, 5535 Cottage Grove avenue; two-story garage and storage station, 25x107; $6500.

Chicago, Ill.; Carmeron Brothers, 115 South Leavitt street; one-story private garage, 26x50; for H. P. Richelson, 2123 West Monroe street; $2000.

Chicago, Ill.; C. Miller, 821 La Fayette Parkway; one-story gargae, 20x32; $1600.

Chicago, Ill.; Moody & Waters Co., 1107 West Congress street; one-story garage, 60x100; $15,000.

Jacksonville, Ill.; S. G. Chumley; two-story public garage, 60x60; for Howard Zahn; $10,000.

Gary, Ind.; Toney Papas, 1525 Adams street; one-story garage, 22x42; for Thomas M. Sulimis, 1532-34 Adams street; $1750.

Sioux City, Ia.; Kincaid & Longnecker, 223 East Seventh street; one-story garage, 100x115; for Pulson Estate; $16,000.

Hays, Kan.; Tony Jacobs; one-story garage, 76x100; $18,000.

Manhattan, Kan.; Mont J. Green; one-story garage, 50x150; for Harry Miller; $20,000.

Salina, Kan.; Nelson Building Co.; one-story garage, 50x100; for Arnold Motor Co.; $8500.

Wichita, Kan.; Oliver Morning, 217 W. Second street; one-story garage, 75x80; for J. T. Donnell, 129 N. Charles street; $6000.

Wichita, Kan.; J. A. Butts, 151 N. Lawrence street; two-story garage, 125x140; $40,000.

Owings, Md.; Price Construction Co., Maryland Trust building; one-story garage, 26x32; for Standard Oil Co., Pier No. 2; $5000.

New Bedford, Mass.; John Sykes, 19 Collins street; one-story public garage, 48x100; for Robert H. Woodland, 78 Campbell street; $7000.

Quincy, Mass.; Oscar Swanson; one-story private garage, 51x82; for Fred Barnicoat, 1 Independence avenue; $7500.

Worcester, Mass.; R. Robbins & Sons, 58 Front street; one-story garage, 22x24; for Esther F. Elias, 320 Highland street.

Detroit, Mich.; W. L. Brown, 96 Highland avenue, Highland Park, Mich.; one-story garage, 98x100; $20,000.

St. Paul, Minn.; H. C. Struchen, 405 Dakota building; one-story garage, 75x100; for Dr. B. A. Pomeroy, 182 East Eighth street; $7500.

Manchester, N. H.; Kennedy & Peterson, 7 Water street, Boston, Mass.; one-story public garage, 61x120; for C. S. Henry, 7 Water street, Boston; $12,000.

Jersey City, N. J.; Antonio D'Eliz, 394 Second street; one-story public garage, 25x48; for A. Macchio, 116 Golden street; $3000.

Trenton, N. J.; Urken & Kohn, care S. Kohn, Clinton and Division streets; two-story garage and show room, 22x75; $3200.

Trenton, N. J.; William E. Green, 339 Bellevue avenue; one-story private garage, 23x36; $3300.

New York, N. Y.; Wharton-Green Co., 37 West 39th street; two-story garage, 100x175; for Theodore Schmidt; $100,000.

Whilestone, L. I., N. Y.; John Fee; one-story garage and storage station, 19x50; for Elandes Ribbon Co., Inc.

Cleveland, O.; Dr. W. E. Lower, 222 Osborn building; two-story garage, 22x25; $10,000.

Tulsa, Okla.; L. R. Nims, Maple Park; two-story garage, 20x26; for J. F. Kays, 126 S. Elgin street; $2500.

Bethlehem, Pa ; George W. Heller, 119 N. New street; one-story garage, 24x40; for John Biro, 700 East Third street; $2000.

Catasauqua, Pa.; Ochs Construction Co., 442 Wire street, Allentown, Pa.; one-story private garage, 25x32; for John Ritter, 548 North Fourth street; $5000.

Glenside, Pa.; Albert Zellfelder, Broad and Walnut streets; one-story garage, 20x20; for George I. Renninger; $2000.

Merion, Pa.; Mrs. Marshall S. Winpenny, Haverford road and Montgomery avenue; 1½-story garage, 26x30; for $6000.

Pittsburgh, Pa.; H. L. Kreusler, 3301 Penn avenue; one-story garage, 26x51; for J. J. Schill, 3709 Butler street; $3000.

Pittsburgh, Pa.; H. A. Bloedel, 610 Armandale avenue; one-story garage, for R. G. Volkwein, 515 Smithfield street; $2000.

Philadelphia, Pa.; George R. Dewers, 311 Grange avenue; one-story garage, 20x30; for W. E. Driver, 5509 North Mascher street; $2100.

Philadelphia, Pa ; Raith Construction Co., 302 Master street; one-story garage for Peter Arnold, N. W. corner Fifth and Allegheny avenue; $4000.

Philadelphia, Pa.; William F. Koelle & Co., 26th and Oxford streets; one-story garage for P. Oliver Derr, Dauphn and Germantown avenue; $6000.

Philadelphia, Pa.; I. A. Dunkelberger, 71 Herman street; one-story garage, 24x25; for C. N. Martin, 408 W. Moreland avenue; $2375.

Philadelphia, Pa.; George H. Evans, 45 North 13th street; one-story garage, 20x20; $1500.

Philadelphia, Pa.; Alfred Mellor, 152 W. Walnut lane; one-story garage, 12x23; $1800.

Shenandoah, Pa.; Joseph S. Hamilton, 829 Orange street; two-story garage, 20x30; for Walter Walukiewiez, 327 West Coat street; $4000.

Scranton, Pa.; Barrett Construction Co., Connell building; one-story private garage, 42x79; for M. F. Fadden, 1409 Mulberg street; $12,000.

Pawtucket, R. I.; J. & P. Coats; one-story private garage, 20x172.

Portsmouth, Va.; J. N. Harris, 324 Chautauqua, Port Norfolk, Va.; one-story garage for C. R. Welton and E. Thompson, 334 High street; $3000.

Portsmouth, Va.; E. B. White; one-story garage; for J. E. Norman, 409 Effingham street; $3500.

Portsmouth, Va.; J. N. Harris; one-story auto storage garage, 25x100; for W. O. Doughtridge; $8000.

Richmond, Va.; T. D. Newell, 200 N. 21st street; one-story garage, 25x60; for Stephen Putney Shoe Co., Allison and Broad streets; $3250.

Staunton, Va.; M. Payne; one-story public garage, 60x80; for Beverley Garage; $4000.

Milwaukee, Wis.; Grossman Brothers, 240 Madison street; one-story garage, 22x35; at 783 Stowell avenue; $2000.

NEW CONCERNS RECENTLY INCORPORATED

Monthly Record of New Business Houses for which Charters Have Been Issued in the Various States and Classified According To Nature of Business.

NEWLY ORGANIZED MANUFACTURERS OF CARS, TRUCKS AND TRACTORS.

Dover, Del.; Automatic Safety Guide Co.; $100,000; to manufacture, sell and deal in and with vehicles with lamps; Richard H. Sharp, James Mayner, F. Hoppe, W. I. N. Lofland.

Dover, Del.; Horse Auto Trailer Corporation; to manufacture a device known as short trailer truck; George S. Beebe, Mary E. Hillis, W. P. White.

Dover, Del.; Mileage Service Station, Inc.; $100,000; to manufacture automobiles and tires; W. F. O'Keefe, J. H. Dowdell, George G. Steigler.

Chicago, Ill.; Detroit Electric Car Co.; $75,000; H. A. Bossett, Ida Snook.

Evansville, Ind.; Liberty Motors Co.; $10,000; to deal in tractors; Anthony A. Becker, Peter J. Becker, Valentine Becker.

Greenburg, Ind.; American Axle Manufacturing Co.; $30,000; to deal in trucks and tractors; W. S. Reed, Frank Hamilton, Roy G. Kanouse, Charles J. Erdmann.

Hammond, Ind.; Betz Motor Truck Co.; $25,000; to manufacture trucks; Lyman B. Betz, Frank S. Betz, Irving K. Betz.

La Porte, Ind.; Rubber Bill Co.; $25,000; to manufacture and sell automobiles; Axel E. Lindgren, William E. Pelz, Bernard L. Pelz, Gerald O. Dawson, Joseph N. Nelson.

Wichita, Kan.; Tank Tractor Sales Co.; $50,000.

Passaic, N. J.; Hudson Auto Engineering Co.; $200,000; to manufacture and repair automobiles; Arthur Hudson, Fred Hudson, Christopher Hudson.

New York, N. Y.; Foster-Roskam Co.; $20,000; to manufacture motors and vehicles; I. E. Roskam, P. Ross, H. M. Samcler.

New York, N. Y.; Langton & Backer; $5000; to manufacture motors and engines; T. J. Langton, C. C. Buitt.

Tacoma, Wash.; Olympia Motor Truck Co.; $20,000; A. J. Snyder, Joseph Foleo.

PARTS AND FITTINGS MAKERS.

Little Rock, Ark.; The Southern Battery Co.; $5000; Wardell Jukes, G. E. Bevis, S. L. Todhunter.

Chicago, Ill.; American Steam Motor Co.; $10,000; Era C. Jacobson, David T. Tweddle, H. A. Moje.

Chicago, Ill.; Eureka Battery Co.; $2500; A. S. Joslin, M. L. Minor, J. E. Joslin.

Chicago, Ill.; Midwest Motor Corporation; $50,000; M. E. Hollister, J. T. Howard.

Indianapolis, Ind.; Central Service Corporation; $10,000; to deal in automotive parts; Clara Skadden, A. E. Skadden, C. F. Glaser.

New Brunswick, N. J.; Wright-Jeffries Tire and Battery Co.; $10,000; J. M. Jeffries, W. M. Blackbaum, Tullus Wright.

Watertown, N. J.; Perl W. Devendorf Corporation; $150,000; to manufacture automobile parts; G. F. Wallis, C. B. Winslow, P. W. Devendorf.

Utica, N. Y.; Everwear Tire and Repair Co.; $10,000; to deal in tires and automobile parts; Harry L. Freeman, Irving N. Block, Harry A. Schafer.

Cleveland, O.; Amplex Battery Co.; $10,000; E. J. Gillen, G. J. Knoll, F. Baque, E. Dudley, Elmer G. Derr.

Martinsville, Va.; American Truck Body Co.; $100,000; to manufacture metal truck bodies.

Fort Worth, Tex.; Fain-Bender Motor Co.; $12,000; C. H. Fain, C. J. Bender, J. W. Milner.

GARAGES AND REPAIR SHOPS.

Fairfield, Ala.; Fairfield Garage Co.; $10,000; W. A. Hicks, J. W. Carmichael, W. M. Carmichael.

Wilmington, Del.; Atlantic Auto Supply and Garage Co.; $20,000; Harry Brosgal, Edward Cook, George L. Townsend.

Alton, Ill.; Progressive Auto Service; $50,000; to operate a garage; Samuel Gould, Max Rubenstein, Jacob B. Kahn.

Chicago, Ill.; Fashion Garage Co.; $10,000; John W. Morsbach, Arthur E. Nelson, R. W. Vanier.

Whiting, Ind.; Service Garage and Supply Station; $5000; Joseph Kovach, Andrew Demkovitch, Jr., Andrew Demkovich.

Derby, Conn.; American Rubber Products Corporation; $500,000; to deal in rubber goods.

Passaic, N. J ; The Community Garage; $50,000; to do a general automobile and garage business.

Cincinnati, O.; The Auto Garage and Service Co.; $10,000; Henry E. Beebe, William C. Jungelas, Raymond Jungelas, T. B. Harris, C. C. McGary.

Dayton, O.; Ohio Co-Operative Auto Sales and Repair Co.; $20,000; Bertram C. Wheeler, Henry W. Esser, Edward Leger, William Ruff.

Newcomerstown, O.; The Carr Garage Co.; $25,000; John W. Bueher, Charles R. Carr, Harry T. Carr, Lester R. Busher, Ethel F. Carr.

Portland, Ore.; Inter-State Garage; $1000.

Corapolis, Pa.; Ninth Avenue Garage, Inc.; $25,000; to own and operate a garage; George Baehr, Hannah I. Baehr, William Baehr.

Greenville, S. C.; Greenville Garage and Welding Co.; $4000.

Masontown, W. Va.; Central Garage and Supply Co.; $20,000; A. W. Hawley, J. E. Hawley, W. H. Post, H. R. Loar, H. P. Hundley, H. H. McMillan.

Clarksburg, W. Va.; Garrett Automobile Co.; $50,000; to conduct an automobile and garage business; Hawes Newlon, Wade H. Garrett, Robert W. Agnew.

Yakima, Wash.; Fulmer Brothers; $50,000; to conduct a garage business; Harry F. Fulmer, J. B. Williams, Frank Fulmer.

ACCESSORIES, EQUIPMENT AND SUPPLIES.

Little Rock, Ark.; The Hewitt Rubber Co.; $10,000; to deal in automobile tires, tubes and accessories; John H. Page, Fred D. Easley, Peyton D. English.

New Haven, Conn.; Moline Knight Sales Co.; $50,000; to deal in automobile accessories.

Dover, Del.; American Sectional Tire Co.; $100,000; to buy and sell and generally deal in rubber tires; H. E. Knox, M. M. Clancy, T. L. Croteau.

Wilmington, Del.; Automobile Heater and Specialty Co.; $100,000; to manufacture automobile heaters.

Wilmington, Del.; The Wear-Well Tire Co.; $50,000; to manufacture and sell pneumatic automobile tires and tubes.

Chicago, Ill.; Conqueror Tire and Rubber Co.; $2500; A. E. Basta, R. J. Feldman, S. W. Shaver.

Chicago, Ill.; Fidelity Tire and Rubber Co.; $50,000; to deal in rubber.

Chicago, Ill.; Mileage Tire Co.; $15,000; Albert H. Olson, Homer T. Flory, Edward L. Madden, John R. Wielgot.

Decatur, Ill.; Decatur Battery Service; $20,000; Howard P. Hanthorn, Bertha W. Hanthorn, G. Roy Eshelman.

Anderson, Ind.; Colonial Tire and Rubber Co.; $250,000; to deal in automobile tires; James W. Sansberry, Luther F. Fence, Charles H. Walters.

Plymouth, Ind.; Speedometer Accessories Co. of America; $10,000; F. W. Crane, Marion Pike, C. C. Campbell.

Springfield, Mo.; Auto Tire Co.; $5000; to buy and sell automobile tubes, tires and accessories; Earl J. Morris, G. A. Copeland, Fred G. Scoss.

Newark, N. .; Auto and Electric Supply Co.; $15,000; to deal in automobile supplies; B. N. Kantor, Morris Weinstein.

Newark, N. J.; F. B. Hague Co.; $125,000; to deal in automobile tires; W. E. Thurton, F. B. Hague, S. E. Hague.

Newark, N. J.; Standard Auto Supply Co.; $50,000; Barney A. Goldfinger, Benjamin Schachat, Jacob Schachat.

Union Hill, N. J.; Union Hill Tire Sales Station, Inc.; $4000; Walter Loewenthal, Sydney Bernheim, Joel Croteau.

Calumet, Mich.; Pan-American Rubber Co.; $50,000; to intrdouce a cellular rubber inner tube substitute for use on automobile wheels, and also to engage in a general automobile sales business; E. A. Moe, H. E. Murray, Sam Hoffenburg, A. Balby, Jacob Talso, Nathan Hoffenberg, P. J. Brennan, T. W. Smith, W. J. Galbraith, Charles Ojala, Jr., William J. Russell, Annette R. Moses, H. E. Murray.

New York, N. Y.; Charlestown Tire and Rubber Co.; $6000; J. Jacobs, S. Bernheim, W. Loewenthal.

New York, N. Y.; Great Western Tire Corporation; $20,000; J. Jacobs, S. Bernhiem, W. Loewenthal.

New York, N. Y.; Tennessee Tire and Rubber Co.; $5000; J. Jacobs, S. Bernheim, W. Loewenthal.

Columbus, O.; Columbus Tire and Rubber Co.; $10,000; E. L. Savage, John A. Dodd, Lloyd C. Anderson, L. K. Osborne.

Cleveland, O.; Forster Tire and Rubber Co.; $200,000; Don P. Mills, P. S. Knight, E. S. Miller, S. R. Klein, D. E. Commery.

Cleveland, O.; Standard Tire Co.; $500,000; R. J. Firestone, Tom A. Palmer, Francis Seiberling, Etta Hamlen.

Dayton, O.; Automobile Repairing and Accessories Co.; $10,000; William D. Schwarting.

Charleston, S. C.; Auto Service Co.; $15,000; to conduct a general tire and accessory business.

Columbia, S. C.; Service Motor Co.; $5000; to conduct a general motor and accessory business.

Sioux Falls, S. D.; Chamberlain Auto and Supply Co.; $25,000; John Lauter, John Tukeg, A. C. Wheeler.

Dallas, Tex.; McGraw Tire and Rubber Co.; $10,000; John Morgan, C. D. Turner, R. E. L. Saner.

Fort Worth, Tex.; Triangle Tire Co.; $30,000; D. K. Isaacs, A. E. Taber, L. B. Isaacs.

Memphis, Tenn.; The Smith Tire Co.; $10,000; to deal in automobile supplies; David N. Harsh, A. B. Knipmeyer, C. E. Powell, John W. Palmer.

Texarkana, Tex.; McGraw Tire and Rubber Co.; $5000; E. L. Reeves, W. H. Riley, E. B. Campbell.

Memphis, Tenn.; Five-Fourteen Tire Co.; $15,000; to conduct a wholesale and retail tire automobile accessory business; A. F. Flumer, W. E. Newman, W. W. Graham.

Racine, Wis.; Consumers' Rubber Co.; $20,000; Joseph E. Bright, W. Harvey Kelly, Juanita C. Bright.

DEALERS IN AUTOMOBILES, MOTOR TRUCKS AND TRACTORS.

Hope, Ark.; Creekmore-Haxen Motor Co.; $10,000; J. J. Creekmore, H. H. Haxen, C. M. Blocker, R. C. Cowan.

Troy, Ala.; The R. J. Barr Motor Car Co.; $20,000; to engage in an automobile and garage business; R. J. Barr, Fox Henderson, S. E. Mary, Fred Henderson, Fox Henderson, Jr., Frank L. Jones.

Dover, Del.; The American Motor Co.; $50,000; to deal in and with automobiles; T. Bradley, J. T. Dunn, F. E. Bradley, A. C. Stallard.

Dover, Del.; Atlantic Auto Supply and Garage Co.; $20,000; to deal in and with automobiles and accessories; Harry Brosgal, Edward G. Cook, George L. Townsend.

Wilmington, Del.; Mileage Service Station, Inc.; $100,000; W. F. O'Keefe, J. H. Dowdell, George G. Steigler.

Chicago, Ill.; Century Motor Truck Co.; $50,000; Carl A. Waldron, I. Sapiro, Archibald Cattell.

Taylorville, Ill.; Bangert Motor Co.; $10,000; William Bangert, Richard O. Coe, Laura Bangert.

Chicago, Ill.; Troike Falardeau Motor Express Co.; $5000; Edith I. Troike, Leo A. Falardeau, Rudolph C. Troike.

Indianapolis, Ind.; Carter, Pfafflin, Burch Co.; $1000; to deal in automobile accessories; Howard R. Carter, Theodore H. Pfafflin, Lucy A. Burch.

Indianapolis, Ind.; General Motors Truck Co.; $10,000; to deal in motor trucks and parts; William H. Pye, Frances Pye, L. E. Peck.

New Albany, Ind.; The Miller Motor Co.; $15,000; to deal in automobiles and accessories; Charles Troy, John B. James, William F. Miller.

Spencer, Ind.; Owen Motor Sales Co.; $10,000; Enoch R. Gray, Paul S. Wark, Charles A. Taylor.

Des Moines, Ia.; Des Moines Exide Battery and Supply Co.; $25,000; to deal in automobile supplies; E. G. Raggensperger, C. A. Walker, Herbert Bishard.

Sioux City, Ia.; Farmer's Automobile Insurance Co.; $200,000; C. S. Renshaw, Arthur Chambers, O. H. Moen.

Waterloo, Ia.; Automobile Exchange; $25,000; to buy and sell new and used cars; F. A. Holmes, R. L. Holmes, A. M. Goodwin.

Louisville, Ky.; American Motor Co.; $50,000; to deal in automobiles; A. C. Stallard, J. T. Dunn, T. P. Bradley.

Alexandria, La.; Rapides Auto Co.; $75,000; Tom L. Owen, John C. Beuhler.

Cambridge, Mass.; Comdelcar Co. of Massachusetts; $25,000; to deal in automobiles; Edward S. Thompson, B. L. Eaton, Nahum W. Thompson.

Butte, Mont.; Montana Tire and Rubber Co.; $10,000; to deal in automobiles, tractors and accessories; C. E. Wade, L. L. Wade, W. M. Shirley.

St. Paul, Mont.; The Mahle Wagon anl Auto Co.; $50,000; William Mahle, George Mahle.

Clifton, N. J.; American 'Bus Co.; $50,000; to operate a 'bus line.

Newark, N. J.; Roamer Automobile Co.; $10,000; L. W. Wehmann, Charles Rosenthal.

Jersey City, N. J.; International Motor Corporation; $15,000; to sell motor trucks; George F. Worth, J. J. McDermott, James McCarron.

New Brunswick, N. J.; Cuthbert-Friedberg Manufacturing Co.; $50,000; to deal in automobiles; Joseph Friedberg, Louis Friedburg, E. C. Cuthbert.

Passaic, N. J.; R. B. Potter Auto Co.; $50,000; to deal in automobiles; R. B. Potter, D. L. Potter, R. J. McDermott.

Rochelle Park, N. J.; General Car and Equipment Co.; $50,000; to deal in automobiles; Herbert Howland, P. K. Templett, Arthur Brooks.

New York, N. Y.; Ajax Auto and Aero Sheet Metal Co.; $15,000; H. W. Meyer, A. M. Jacobs.

New York, N. Y.; Banks-Lundwall Auto Corporation; $5000; to manufacture automobiles; Florence Banks, Eric W. Lundwall, A. E. Glassman.

Buffalo, N. Y.; Hession Sales Corporation; $25,000; D. F. Hession, B. G. Schagger, H. W. Brendel.

Schenectady, N. Y.; Mohawk Auto Sales Corporation; $5000; J. A. Haraden, A. A. Seeley, Jr., J. W. Pearson.

New York, N. Y.; A. B. Norwalk & Co., Inc.; $5000; to conduct an automobile business; A. B. Norwalk, Moses Lewis, Maurice Lefkort.

New York, N. Y.; Smith-Schermerhorn Corporation; $10,000; to conduct an automobile business; V. G. Campbell, O. F. Presbrey, P. Davenport.

Akron, O.; Holmes Akron Motor Car Co.; $10,000; Harry G. Gamble, F. E. Remark, Alfred Herberich, E. V. Smith.

Cincinnati, O.; The Ault-Apking Co.; $50,000; to deal in automobiles; Lorenzo Don Ault, Jr., Albert H. Apking, George A. Dornette, Charles E. Dornette, John G. Robinson, Jr.

Cincinnati, O.; Avondale Motor Car Co.; $40,000; H. L. Ottenjohn, William R. Johnson, Charles W. Schmidt.

Cincinnati, O.; Madison Motor Car Co.; $75,000; C. E. De Laney Martin, Robert L. Martin, Frank E. Wood.

Cincinnati, O.; Nash Cincinnati Motors Co.; $150,000; J. A. Cline, J. C. Logue, Dorr E. Warner, H. M. Siering, G. O. Smith.

Cincinnati, O.; Wolf Auto Electric Service Co.; $10,000; Henry C. Wolf, William Wolf, Edward Wolf, A. M. Danheiser, Walter L. Haldy.

Cleveland, O.; S. W. Haufur Motor Truck Co.; $25,000; Charles E. Hall, William C. Smith, Robert W. Fuhrman.

Dayton. O.; Auto Electric Equipment Co.; $10,000; Russell C. Howard, Warren A. Johnston, Jerry McDonald, Nelson R. Haas.

Dayton, O.; Philadelphia Battery Service Co.; $10,000; Timothy D. Walker, Terry B. Hunter, E. Frank Blessing.

New Philadelphia, O.; The W. R. Stucky Motor Car Co.; $20,000; W. R. Stucky, Emery Ankney, Ollie Smith, Margaret Stucky, Homer Safford.

Akron, O.; Homes Akron Motor Co.; $10,000; Harry G. Ganble, R. E. Remark, Alfred Herberich, E. V. Smith, Herbert R. Fairell.

Oklahoma City, Okla.; Pierson Auto Co.; $10,000; W. O. Pierson, S. K. Bernstein, O. A. Pierson.

Charleston, S. C.; Paul-Gilbert Motor Co.; $25,000; to conduct a general automobile business.

Sioux Falls, S. D.; Motor Sales and Finance Co.; $500,000; J. C. Arnold, O. A. Kruse, J. C. West.

Beaufort, S. C.; Wall Motor Co.; $20,000.

Alamo, Tenn.; The Crockett County Auto Co.; $5000; J. S. Thompson, R. L. Thompson, C. V. Young.

Waco, Tex.; Central Motor Co.; $75,000; J. M. Nash, J. N. Mitchell, Roy Eddins.

Fort Worth, Tex.; Stapleton Brown Motor Co.; $20,000; C. M. Maxwell, Theodore Mack, Earl M. Stapleton.

Danville, Va.; Lee A. Wilson Motor Co., Inc.; $25,000; to conduct a general automobile business; Lee A. Wilson, Myrtle Lee.

Roanoke, Va.; Johnson-Pittman Motor Corporation; $25,000; V. D. Johnson, J. E. Pittman.

Lynchburg, Va.; Myer Motor Co.; $50,000; to conduct an automobile business.

Richmond, Va.; Pitman-Spivey Motor Corporation; $50,000; to conduct an automobile business.

Ronnoke, Va.; Nash Motor Co., Inc.; $10,000.

Huntington, W. Va.; Automobile Service Association; $25,000; to operate a plant; C. L. Van Zandt, J. R. Damron, Nat Cordish, C. E. Smith, Philip P. Gobson.

Yonkers, N. Y.; The Victory Safety Vehicle Co.; $20,000; E. G. Schleicher, L. S. Powers, A. M. Krug.

Brooklyn, N. Y.; Marvel Motor Truck Corporation; $100,000; A. W. Beal, A. S. and P. Rampell, 103 Hart street.

Watertown, N. Y.; Keegan, Mattern & Gaffney; $10,000; D. A. Keegan, G. Mattern, R. T. Gaffney.

Newark, N. J.; The Dauphin Motor Co.; $100,000; Samuel Boss, Edward C. Allen, Herman Linsen.

New York, N. Y.; The F. P. F. Corporation; $12,000; M. Rubinger, M. Feig, M. Perl, 409 East 70th street.

Wilmington, Del.; Atlanta Auto Supply and Garage Co.; automobiles and accessories; $20,000; Harry Brosgal, Edward G. Cook, George L. Townsend.

Brooklyn, N. Y.; Gillem-Perrine Auto Co.; $60,000; E. L. Puppe, W. H. Perrine, C. J. Gillem, 1694 Church avenue.

Stocks on New York Exchange

Securities and General Materials Markets

Automobile and Tire Quotations

New York Stock Market

	April 22 High	Low
Ajax Rubber	81	79⅝
Chandler Motor	145½	145
General Motors	181¼	178½
General Motors, pfd	93⅛	93
General Motors, Deb	93⅛	92½
Goodrich (B. F.) Co	72½	71
Goodrich, pfd	108	108
Kelly-Springfield Tire	127¼	125¼
Keystone Tire and Rubber	99⅞	95
Lee Rubber and Tire	35½	27¾
Maxwell Motors	40½	39⅞
Maxwell Motors, 1st pfd	69	68
Maxwell Motors, 2nd pfd	32½	32
Pierce-Arrow	52⅞	51
Pierce-Arrow, pfd	105	105
Saxon Motor	8¼	8⅛
Stromberg Carburetor	41	40⅞
Studebaker Co	77	74⅞
Stutz Motor	59¼	57½
U. S. Rubber	89¼	87⅝
U. S. Rubber, 1st pfd	112	112
White Motors	60	58⅝
Willys-Overland	33⅛	32⅜
Willys-Overland, pfd	95½	95

AUTOMOBILE SHEET PRICES.

(Based on No. 22 Gage. Other gages at usual differentials.)

	Primes are taken only per 100 lbs.	Primes when Seconds up to 15 per cent. per 100 lbs.
Automobile body stock	$5.95	$5.85
Automobile body stock, deep stamping	6.20	6.10
Automobile body stock, extra deep stamping	6.45	6.35
Hood, flat, fender, door and apron, or splash guard stock	6.05	5.95
Crown fender, cowl and radiator casing, extra deep stamping	6.55	6.45
Crown fender, cowl and radiator casing, deep stamping	6.30	6.20

Automobile sheet extras for extreme widths:

Nos. 17 and 18 over 36 in. to 44 in., 10c per 100 lbs.

Nos. 19 and 21 over 36 in. to 44 in., 30c per 100 lbs.

Nos. 22 and 24 over 26 in. to 40 in., 40c per 100 lbs.

Nos. 22 and 24 over 40 in. to 44 in., 80c per 100 lbs.

Blank sheet extras to apply to narrow widths:

Oiling, 10c per 100 lbs.

Patent leveling, 25c per 100 lbs.

Resquaring, 5 per cent. of gage price after quality, finish and size extras have been added.

Second per cent. less than the invoice Pittsburgh price for correspondence primes.

MEETINGS.

	Date Held	Books Close	Books Open
General Motors	Apr. 30	Apr. 9	......
Stutz Motor Co.	June 19	June 7	June 20
Willys-O'land	May 13	Apr. 15	May 14
White Motor	May 3	......	......

GENERAL MARKET PRICES.

ACIDS.

Muriatic, lb	.02	- .03
Phosphoric (85%), lb	.35	- .39
Sulphuric (60%), lb	.008	

ALUMINUM.

Ingot, lb	.29	- .31
Sheets (18 gage or more), lb	.42	- .06⅞

BURLAP.

8 oz., yd	.07
10½ oz., yd	.09

COPPER.

Elec., lb	.15¼	- .15½
Lake, lb	.15¾	-. 15⅞

FABRIC TIRE (17¼ oz.).

Sea Island, combed, sq. yd	1.40
Egypt, combed, sq. yd	1.25
Egypt, carded, sq. yd	1.20
Peelers, combed, sq. yd	1.10
Peelers, carder, sq. yd	.85
Fiber (⅛ in. sheet base), lb	.50

GRAPHITE.

Ceylon, lb	.09	- .22
Madagascar, lb	.10	- .15
Mexico, lb	.03¾	
Lead, lb	.04¾	- .05

LEATHER.

Hides, lb	.25	- .41

OIL.

Gasoline:		
Auto, gal	.24½	
68 to 70 gal	.30½	
Lard:		
Prime City, gal	2.50	
Ex. No. 1, gal	.95	-1.00
Linseed, gal	1.45	-1.48
Petroleum (crude):		
Kansas, bbl	2.25	
Pennsyl., bbl	4.00	
Menhaden (dark), gal	.95	

RUBBER.

Plantation:		
First latex pale crepe, lb.	.49	
Brown crepe, thin, clear, lb.	.44	
Smoked, ribbed sheets, lb.	.48½	
Para:		
Up River, fine, lb	.56	
Up River, coarse, lb	.34	
Island, fine, lb	.47½	- .48
Shellac (orange), lb	.60	- .64
Spelter, lb	.06½	

STEEL.

Angles, beams and channels	.03	
Cold rolled, lb	.0625	
Hot rolled, lb	.039	
Tin	.71	- .72
Tungsten, lb	1.00	
Waste (cotton, lb)	.12¾	- .17

Auto and Tire Stocks

	Bid	Asked
Chalmers	9¾	10
Chevrolet	200	..
Hendee Mfg. Co	17	22
Hupp Motors	8¼	8½
Inter Motor, pfd	30	60
Inter Motor, pfd	..	60
Inter Motor, 2nd pfd	..	40
Mitchell Motors	20	40
National Motor	14	18
Peerless	23	23¼
Republic Motor	39	41
Republic Motor, pfd	86	92
Scripps Booth	20	40
United Motors	46	46½

DIVIDENDS, MEETINGS, ETC.

Company	Rate	Payable	Stock of Record
Am. La France Fire Engine	$2	*May 15	May 8
B. F. Goodrich Co.	$1	*Aug. 15	Aug. 5
E. I. duPont de Nemours & Co. deb.	1½%	*Apr. 25	Apr. 10
General Motors	3%	*May 1	Apr. 15
do pfd. and deb. stocks	1½%	*May 1	Apr. 15
Goodrich, B. F. pfd.	1¾%	*July 1	......
Hood Rubber pfd.	$1.75	*May 1	Apr. 22
Kelly-Springfield Tire Co.	$1	*May 1	Apr. 15
do com.	3%	*May 1	Apr. 15
Keystone Tire & Rubber stock	15%	May 20	May 1
Mason Tire & Rubber	2%	May 20	Jan. 31
do	2%	Aug. 20	Jan. 31
Nash Motors pfd.	$1.75	May 1	Apr. 18
Packard Motor Car	2%	*Apr. 30	Apr. 15
Pierce-Arrow Motor Car	$1.25	May 1	Apr. 15
Russell Motor Car pfd.	1¾%	*May 1	Apr. 17
Stewart Mfg.	$1	May 1	Apr. 15
U. S. Rubber Co., pfd.	2%	*Apr. 30	Apr. 15
do 2nd pfd.	1½%	*Apr. 30	Apr. 15
Willys-Overland	25c	*May 1	Apr. 15

*Quarterly.

STEEL MARKET.

That an open steel market exists is the general opinion. The automobile makers' orders continue to be the largest business of the steel works.

Foreign Trade Opportunities Offered By U. S.

(Address Bureau of Foreign and Domestic Commerce, Washington, D. C., giving number, which will forward correspondence, unless otherwise stated.)

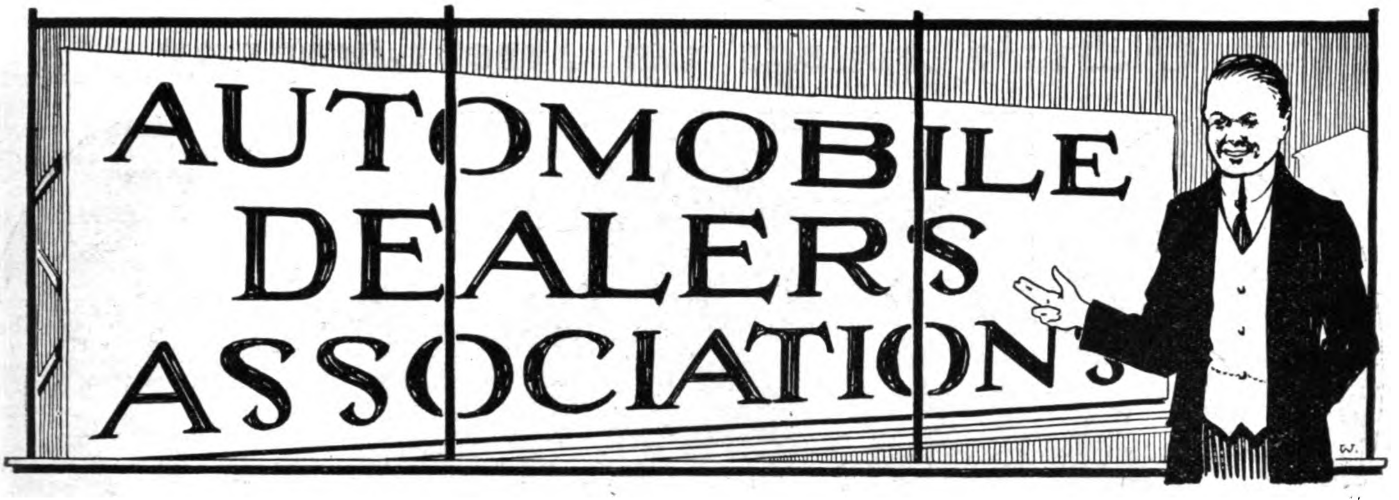
28,934. A company in Holland desires to secure the sole agency for the sale of wire for pressed straw, hay and moss litter, chemical manures and agricultural implements and machinery, especially small motor plows for use on small farms. Reference.

28,966. A large import-export house in the United States with branches in Holland and Java desires to enter into negotiations with manufacturers of general machinery, motors, commercial motor cars and other technical articles for an exclusive agency in the Dutch East Indies.

28,988. An agency is desired by a man in Italy for the sale of motor cars, iron and steel pipes and fittings, leather and leather goods. Correspondence may be in English. References.

29,039. An automobile importer in Spain desires to purchase and secure an agency for the sale in southern Spain of gasoline or petroleum tractors from 10 to 30 horsepower. Four are desired immediately and, if satisfactory, 10 or 12 more later. Correspondence may be in English. References.

29,059. A firm in Sweden wishes to purchase automobile tires, rubber sundries, etc. Quotations should be given f. o. b. New York. Terms cash against documents. References.



AUTOMOBILE DEALERS ASSOCIATIONS

New York City

NEW YORK CITY is to have a better social organization for the motor vehicle trade. The Automobile Dealers' Association has arranged to take two floors of the building at 1845 Broadway, and will establish club quarters there. Members of the Motor Club, the Motor Truck Association and other clubs not already registered as dealer members of the A. D. A. will be eligible as associate members of the new club. It will do away with some of the duplication of activities of the existing clubs, none of which now has any real club life.

There long has been need in New York for just the sort of organization that is now under way. The financial success of the show conducted by the dealers made available funds for the realization of plans that long have been held by leading spirts of the Automobile Dealers' Association.

The lease on the premises starts May 1 and no time will be lost in getting the place ready for club purposes. It is hoped that the new club rooms will draw all the automobile dealers together. There will be restaurant, reading and meeting rooms.

The dealers have had an incorporated association for nearly a decade, but it has always lived in a hotel. Visiting automobile dealers have often expressed their surprise when told that the New York automobile merchants did not "herd" well. The new club plan is expected to prove a binder that will join and hold them together.

At a recent meeting of the board of directors of the association, Charles M. Brown was re-elected president, William C. Poertner was re-elected vice president and William Parkinson was re-elected treasurer. The new board of directors consists of H. R. Bliss, Colt-Stratton Co.; C. M. Brown, Winton Co.; H. J. DeBear, Maxwell Motor Co.; R. J. Gilmore, Packard Motor Car Co.; C. H. Larson, Cutting-Larson Co.; William Parkinson, William Parkinson Motor Sales Co.; William C. Poertner, Poertner Motor Car Co.; A. C. Southworth, Buick Motor Co.; W. D. Stewart, Willys-Overland, Inc., and Walter A. Woods, Van Cortlandt Vehicle Co.

Charles M. Brown, President, Automobile Dealers' Association of New York City.

The Motor Club, which was organized some years ago and which has been supported by a handful of the dealers' associations, now seems doomed to close its hole-in-the-wall on 58th street. When the new club rooms are opened those who keep the motor club alive will automatically move and there will be little reason for existence for the Motor Club.

At the same time the directors of the dealers' association do not intend, apparently, to take over the Motor Club as a body. There will be two or more classifications of members, and those members of the Motor Club who care to may become associate members of the association and enjoy the benefits of its new quarters.

N. A. D. A.

The National Automobile Dealers' Association's programme of Sunday closing was not a merger with the blue laws, according to F. W. A. Vesper, president, but an effort to take the automobile dealer out of the class of the livery stable keepers, corner grocers, country barbers and the like. Before the armistice the dealers voluntarily closed upon request of the War Service Committee. There never was an order to close. The N. A. D. A. advocated Sunday closing because it would help the dealers.

Philadelphia

Louis C. Block is the new president of the Philadelphia Automobile Trade Association. Other officers are: Vice president, Lee J. Eastman; secretary, H. B. Harper; treasurer, J. E. Gomery.

With the retiring president, A. E. Maltby, and J. H. Fassit, O. R. Cunliffe, L. S. Bowers and J. Sweeten, Jr., these officers complete the roster of directors. Mr. Block has held the presidential reins on several occasions in the past.

DEALERS OVERCOME OBSTACLES.

Oklahoma City dealers received no encouragement from the Chamber of Commerce when they announced that they would erect a temporary building, 200 by 70 feet, for their show this spring. They were told that their plans were practically impossible of execution. But the dealers went ahead without outside assistance, put up the building, got around the fire law restrictions and overcame all other obstacles. Every foot of exhibit space was sold and the show was a wonderful success.

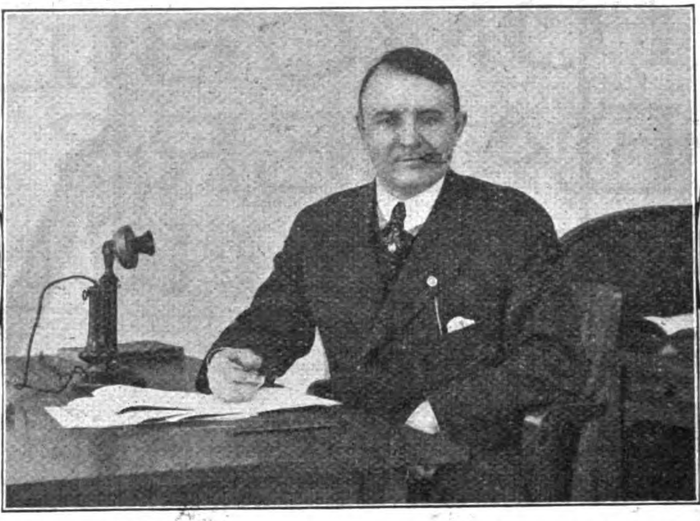
OPPOSE LICENSE BILL.

Massachusetts motor car dealers will have to do over again much of the work that they had already accomplished in opposing the bill recommended by the special commission on motor vehicles, which proposes to require dealers who handle used cars to take out licenses, and which also prohibits the sale of a used car without previous notice to the Highway Commission and to the local police. This matter has been before the Committee on Roads and Bridges of the General Court and has been considered at hearings and conferences. Now that committee has secured the transfer of the bill, which is included in House bill 1450, to the Committee on Legal Affairs.

The motor vehicle dealers are strongly opposed to the passage of this bill, the proponents of which urged it as a means of preventing the theft of motor cars. The dealers assert that it is an unwarranted interference with their legitimate business, and they do not like the idea of being classed with junk dealers. At a recent meeting the Boston Automobile Dealers' Association voted unanimously to oppose the bill.

Oldfield Speeds Up Tire Company

C. L. Reely, Advertising Manager, Oldfield Tire Co.



Barney Oldfield, Former Race Driver, of Los Angeles and Cleveland, President, Oldfield Tire Co.

R. D. Gilbert, Secretary-Treasurer, Oldfield Tire Co.

When Barney Oldfield retired from racing to enter the manufacturing field at the head of the Oldfield Tire Co., one of his first acts was to reduce to junk the famous Christie racing car that had served for so many years as his pet "war horse." For distance up to two miles the Christie was probably the fastest car ever constructed. It carried to the scrap pile the official world's speedway records up to two miles, as well as the record for one lap on the Indianapolis speedway—time, 1:27.40.

Barney's speeding days, however, are not over, for he is showing an unusual pace in the manner in which he is hustling along the affairs of his tire company. He has a strong organization back of him. R. D. Gilbert, secretary and treasurer, is an executive of long experience with one of the largest tire manufacturers. He has charge of the office headquarters.

C. L. Reely, for the last three years advertising manager of the Glidden Co., is advertising manager of the Oldfield organization. Both at the Glidden Co. and the Buffalo Shirt Co., where he was sales and advertising manager, Mr. Reely gave special attention to the formation of advertising plans, which meshed closely with dealer effort, and to furnishing dealers with various effective aids for local use.

The dealers that form connections with the Oldfield concern may have full confidence that there is a live-wire organization back of them.

MCGRAW TIRE BRANCH IN MINNEAPOLIS.

The McGraw Tire Co. has opened a branch at 1110 Harmon place, Minneapolis, Minn., and will serve Minnesota, the Dakotas, Montana and part of Wisconsin. R. C. Fay is manager and G. C. Van Atta is traveling representative. A. F. Bihl will look after the South Dakota district. C. M. Cummings, formerly of Kansas City, is office manager.

STAR RUBBER CO. OPENS NEW OFFICES.

The Star Rubber Co. has established direct factory wholesale branches in New York City and Atlanta. The New York branch will serve New York state, the New England states and eastern Pennsylvania, and the Atlantic branch will distribute to the Carolinas, Georgia, Florida, Mississippi, Louisiana, Tennessee and Alabama. L. I. Ris is in charge of the New York branch, which is at 226 West 52nd street. The Star Rubber Co. has let contracts for the erection and equipment of an addition to its plant, to cost more than $200,000. A separate building is planned for cord tire fabric spreaders.

SELLS VICTORY TIRE.

The Victory Tire Co., West Fifth and Seventh streets, St. Paul, Minn., will wholesale and retail the Victory tire.

NEW ENGLAND AGENTS FOR ZEE ZEE TIRE.

J. P. Stiles and C. K. Carter, formerly connected with the Providence, R. I., branch of the Sterling Tire Corporation, have opened a place of business at 193-195 Broad street, Providence, where they will conduct the New England agency of Zee Zee tires and tubes.

HARRY J. CARTER DEAD.

Harry J. Carter, formerly with the Morgan & Wright Tire Co. and for the last three years in the mechanical department of the Ford Motor Co., died at his home in Detroit from plural pneumonia.

TIRES AND TUBES IN DEPARTMENT STORE.

The Keystone Tire and Rubber Co. has arranged to open an automobile tire and tube department in the Bloomingdale Bros. store, 59th street and Third avenue, New York City.

The Oneida Tire Co., Inc., Oneida, N. Y., has been incorporated with $10,000 capitalization by B. Kooll, A. Dana and H. A. Milner, Oneida.

S. M. Clement has opened an agency for the Houk steel wheel at 29 Tenth street, S., Minneapolis, Minn.

NEW TIRE COMPANY STARTS IN NEW YORK.

The Risse Retreading Corporation, 229 West 52nd street, New York City, has closed a contract with a Chicago tire concern as its exclusive distributor for the metropolitan district for a chrome leather steel studded tire tread, which is applied to used or worn tires, a Belgian-French process, said to have been used quite extensively in Europe, especially during the war. The company will establish throughout the city a number of service stations.

PRICE NEW ENGLAND AGENT FOR MASON TIRE.

D. B. Price, who represented the Firestone Tire and Rubber Co. in New England for nine years, is now New England manager for the Mason Tire and Rubber Co., Kent, O. The Mason firm has established a branch at 165 Massachusetts avenue, Boston. The Mason company has been building tires for four years, making cords, fabrics and solids. Its products are built without regard to cost of manufacture to give the best service possible to the user.

NEW TIRE COMPANY.

The Reuben Tire Co., recently organized by A. G. Reuben, will distribute Diamond tires at 900 Hennepin avenue, Minneapolis, Minn.

Tire Makers and Dealers

HOW MOTOR TRANSPORT CORPS TESTED TIRES.

An officer of the Motor Transport Corps thus describes automobile tire tests in the army:

"The road test was very severe, being over some of the worst roads in Maryland, with an exceptionally heavy load of merchandise.

"The chemical test was scientific, the tire being put into a tank of very strong acids and salts, and kept therein for 48 hours. After the chemical test it was put through what is known as the fire test. This simply means that the tire is put into an oven and baked, and the results showed whether or not the rubber was properly cured.

"The overseas test is the most interesting and the severest of them all. The tire is put on a spinwheel with an inner tube with a hundred pound air pressure and spun around on a sort of a camshaft at a terrific rate of speed, hitting all kinds of broken metal and glass, tacks and nails, and in fact several sorts of sharp edges that would penetrate through the rubber and fabric.

"All the above experiments required a new pneumatic tire of each make for each test, and the tires were bought at different points throughout the United States, so that the manufacturers would not get special made tires for tests."

CARLISLE CORD TIRE PLANS STAMFORD PLANT.

The Carlisle Cord Tire Co., operating a manufacturing plant at Andover, Mass., has bought a factory site of 10 acres in Stamford, Conn. A factory will be built there, with the main building 250 by 150 feet, and 250 hands will be employed at the start. The company will continue to operate the Andover plant, but the principal factory and executive offices will be in Stamford. The president of the company is J. S. Bretz, New York, who is also president of the Bearings Co. of America.

TIRE AND RUBBER SUPPLIES.

The Arcade Tire and Supply Co., Manhattan, New York City, has been chartered with $20,000 capitalization by H. Blicher, M. and B. Grossfield, 518 West 151st street.

CHARTER TIRE COMPANY.

The Daley Tire Co., to manufacture tires of all kinds, has been chartered in Delaware with $25,000 capitalization by Maurice Minoz, John Hall Jones and John S. Ogletree, all of New York.

SELLS KEYSTONE TIRES.

C. P. Reineberg is manager of the Tire Co., 77 West Fifth street, St. Paul, Minn., which will sell and distribute Keystone tires. The company is a branch of the Tire Co. of America.

THE GENERAL TIRE & RUBBER CO.

General Tire.

VULCANIZING REQUIREMENTS.

Catalogue B, just published by the Wilkinson Vulcanizing Manufacturing Co., San Bernardino, Cal., illustrates and describes the Wilkinson sectional vulcanizers, tube vulcanizers, retread vulcanizers and tread rollers. The foreword of the catalogue states: "It is the policy of the Wilkinson Manufacturing Co. to perfect and offer to the vulcanizing trade, as rapidly as our capacity will permit, the latest and most efficient equipment in vulcanizing machinery. We maintain a special department under the supervision of skilled mechanics thoroughly familiar with every requirement known to the modern tire repair shop. Every unit of a Wilkinson equipment is manufactured by the Wilkinson Manufacturing Co. from the very best material obtainable, and to this end we aim to supply a superior device at a cost that will force your consideration."

After paying various charges, war taxes and preferred dividends of $7,792,709, the surplus of the United States Rubber Co. for the six months ending June 30, 1918, was equal to $21.64 a share on common stock.

WORLD'S LARGEST PLANT FOR TIRE REINFORCEMENTS.

The K & W Rubber Co., which has been in business in Ashland, O., for 11 years, has purchased 10 acres of ground along the Big Four railroad in Delaware, O., and has erected a modern factory there. The company is one of the original manufacturers of tire reinforcements, and was the first to use the name "reliner" in connection with a tire reinforcement.

Several years ago the company made a marked improvement on the old style "Reliner" and this is now called "Maxotire." This is giving universal service throughout the country. The accompanying illustration shows the new factory, where "Maxotire" will be made. It will be the largest building in the world devoted exclusively to the manufacture of tire reinforcements.

NO REDUCTION IN SIGHT FOR TIRE PRICES.

Prices of tires will be reduced only when costs of commodities, particularly, cotton, have been materially reduced, according to Samuel P. Colt, chairman of the United States Rubber Co.

"Wages have risen to a high scale," said Col. Colt in a recent interview. "I hope that prices will be maintained sufficiently high to give a fair margin of profit without disturbing the wage scale, at least until the cost of living has returned to normal. Certainly the policy of this company will be to maintain wages as far as possible.

"During the coming year I do not anticipate any great advance in crude rubber. Stocks have accumulated in the East, caused by the restrictions of the United States government and the full production of all plantations. It was believed in the East that there were held in the markets and on the plantations 60,000 tons. This amount, considered with the prospective output of 1918 of approximately 300,000 tons, will supply the needs of America and countries against which embargoes existed during the war. The transportation from the East to America has been ample, but restrictions prevented the exporters taking advantage of this situation."

PERFECTION TIRE RUBBER CO. TO MAKE KEYSTONE.

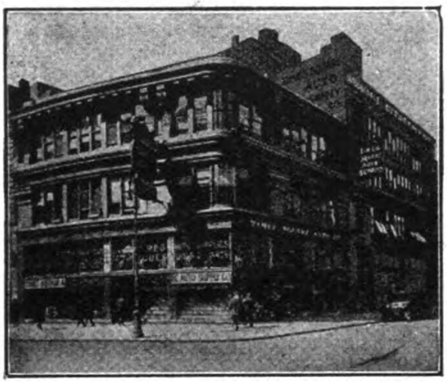
The Keystone Tire and Rubber Co. has closed a contract with the Perfection Tire Rubber Co. under terms of which the latter company will manufacture Keystone tires. The Perfection plant will turn out about 3000 tires a day. The tires manufactured at the Keystone plants will be shipped direct to the stores controlled by the Keystone company in the middle west, thus saving freight expenses.

New Plant of K. & W. Rubber Co., Delaware, O.

Announces New Wholesale Policy

JESSE FROEHLICH, president of the Times Square Auto Supply Co., New York City, which he founded 14 years ago and has 21 branches in 18 leading cities, announces a new wholesale policy. This permits any dealer or garage man to represent this house and sell Times Square Auto Supply Co. goods at the same prices as they are sold in the firm's own retail stores.

The dealer who buys from the Times Square Auto Supply Co. is supplied with an attractive window sign showing he is a Timesco dealer, which identifies him as the local distributor of the Times Square Auto Supply Co.



The dealer is also supplied with attractive consumers' catalogues which list practically everything pertaining to an automobile. These catalogues have the dealer's name and address printed on the cover and the dealer distributes these catalogues among his customers as his own. The Times Square Auto Supply Co. supplies the dealer at wholesale with anything printed in this catalogue; so that the dealer can sell these articles to his customers at the fair retail prices quoted in this catalogue—and make a fair profit for himself.

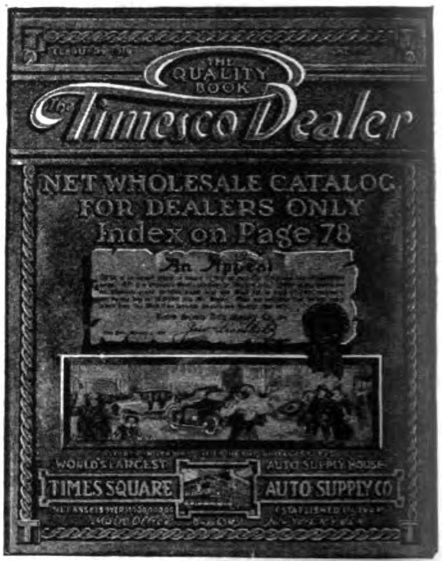
JESSE FROEHLICH
Pres.
TIMES SQUARE AUTO SUPPLY CO.

In order to help the dealer get the utmost benefit from this new wholesale policy, the Times Square Auto Supply Co. is prepared to give its dealers free the services of four big dealers' business departments, viz.:

"The Timesco Dealer Help Department," which furnishes dealers, free, expert counsel on accounting, financial and legal matters besides practical help in conducting their business profitably and economically.

"The Timesco Window Trimming Department" gives dealers practical suggestions on how to trim windows effectively so as to bring trade.

"The Timesco Exclusive Sales Privileges" are valuable dealer franchises on such fast selling items as Triumph tires, For-a-Ford spark plugs, etc., which can be obtained only from the Times Square Auto Supply Co.



THE QUALITY BOOK
Timesco Dealer
NET WHOLESALE CATALOG FOR DEALERS ONLY
Index on Page 78
An Appeal
WORLD'S LARGEST AUTO SUPPLY HOUSE
TIMES SQUARE AUTO SUPPLY CO

"The Timesco Newspaper Ad Service" furnishes dealers, at no [illegible], with attractive cuts and [illegible] cially adapted for newspa[illegible] also prepares free any [illegible] ing matter the dealer may [illegible] his business.

All the above features [illegible] wholesale policy of the [illegible] Auto Supply Co. are outlined [illegible] catalogue just published, [illegible] Dealer," which is free to any [illegible] dealer, garage man or rep[illegible] and can be obtained by addressing [illegible] Square Auto Supply Co., [illegible] and 56th street, New York City.

NEW AIR COMPRESSOR.

The Ingersoll-Rand Co., 11 Broadway, New York, is marketing a new type of small air compressor. There are four sizes and the capacities range runs from three to 45 cubic feet per minute at pressures to 100 pounds per square inch. The small compressors can be used for pressure requirements up to 200 pounds per square inch, the horsepower needed being slightly increased. They are single acting machines of the vertical type built for belt drive.

DORR-MILLER DIFFERENTIAL.

The Dorr-Miller Differential Co., 90 West street, New York, has acquired by purchase the entire interests and plant of the Ward Machine and Tool Co., located at 136 Fort street, East, Detroit. With larger manufacturing facilities the company will soon be in a position to manufacture its gearless differential in such quantities as will take care of even the largest of the passenger car makers. At present production is confined almost entirely to the heavier types for trucks and tractors.

A portion of the plant will be devoted entirely to the special Ford size, due to the increasing demand for this type as replacement. The Ford size, No. 1-F, will be distributed through county agents who are now being appointed in every county throughout the country. Any live wire in a position to handle this differential would do well to write to the Dorr-Miller Differential Co., 90 West street, New York, for its proposition.

BLACKBURN NOW MANAGER OF GRAY MOTOR CO.

William Blackburn, formerly factory manager for the Cadillac Motor Car Co., is now manager of the Gray Motor Co., Detroit, in entire charge of the manufacture of the 3¼ by five-inch overhead valve, Victory motor.

DEALERS SEEK TRADE [illegible]NECTIONS.

A letter to this publication from the Auto Tire and Supply Co., 701-703 Pine street, Seattle, Wash., states:

"We would like to get together a number of high grade accessory lines to represent to the dealer and jobber in this territory on a commission basis. We have the organization to cover this territory in such a manner so as to show the manufacturer satisfactory results.

"It seems to us that there are any number of good lines that lack the proper representation in this territory."

The letter is signed by D. E. Marriott, president and treasurer.

A letter from C. H. Fowler & Sons, dealer in general merchandise and agricultural implements, Lanesboro, Mass., states that the firm intends to add a line of automobile accessories to its business, and would like to get into touch with manufacturers and jobbers, also with firms that print automobile accessories catalogues.

FISK

SOLID

TIRES

—dependable

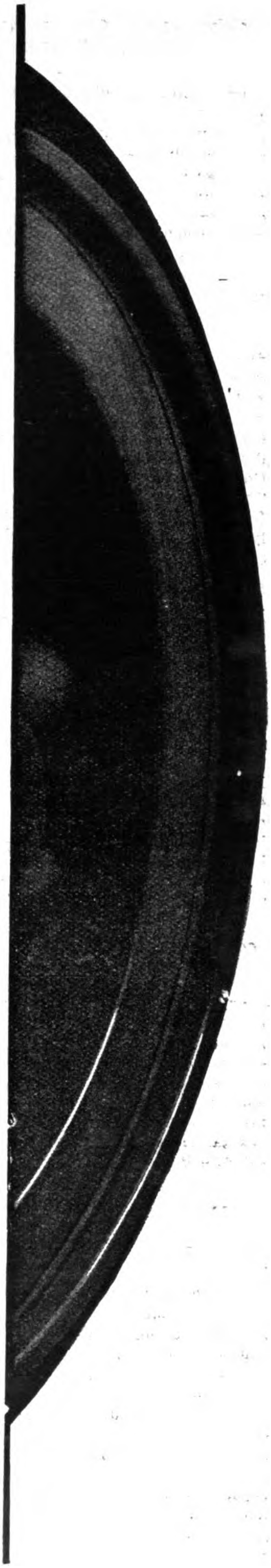
BUILT to wear and meet the rugged conditions encountered in daily use.

You can recommend them to your trade with the knowledge that you are building confidence and lasting friendship for yourself.

THE FISK RUBBER CO.
of N. Y.
Chicopee Falls, Mass.

Trade Mark Reg. U. S. Pat. Off.

Time to Re-tire?
(Buy Fisk)



PROMINENT MEN TAKE OVER STANDARD TIRE CO.

The factory, good will and entire business of the Standard Tire and Rubber Co., Willoughby, O., including a branch store in Cleveland, has been disposed of to a group of experienced rubber men, principally from Akron, who are now operating it. The new company starts with $500,000 capital, and is arranging to increase greatly the factory production, now confined to fabric and cord pneumatic tires and red and gray inner tubes.

R. J. Firestone, the president, was formerly vice president and sales manager of the Firestone Tire and Rubber Co. E. A. Tinsman, vice president, was formerly factory manager of the Portage Rubber Co. C. A. McCullough, second vice president, is manager of the Frank Parmelee Co., Chicago, and treasurer of the Thompson chain of restaurants. Tom Al. Palmer, secretary-treasurer, was formerly an official of the Diamond Match Co. and the Granite Clay Co., Akron, O.

ARROW GRIP MANUFACTURING CO. WILL ERECT NEW FACTORY.

The Arrow Grip Manufacturing Co. has increased its capital stock from $100,000 to $500,000, and is about to start the erection of a new factory in which will be manufactured not only Arrow Grip Non-Skid Chains, but also the Arrow Grip Roller Base Jack, as well as several other high grade accessories. The company has a representative in New York handling all export business, its offices being located at 16 West 61st Street, Locomobile building. The company is operating its own warehouse in Chicago.

GASOLINE PRICE WAR IN SOUTH COMES TO AN END.

The low cost of gasoline brought joy to southern motorists while the big oil companies were having a price war, which took place generally throughout the South. Several days of price cutting sent the price down to 11 cents a gallon, but following an armistice, the war ended and gasoline resumed its former important role in the high cost of autoing.

ONLY ONE KISSEL CHASSIS.

G. A. Kissel, president of the Kissel Motor Car Co., in announcing plans for his company, stated:

"We will concentrate on one passenger car chassis only—the result of the culmination of 11 years of engineering achievements and innovation triumphs.

"We will incorporate in the new Custom-Built Six—peace time efficiency, plus war time economy—in two exclusive body designs, encompassing those unique and distinctive features that characterize the expensive custom-built jobs. The new touring car, mounted on the custom-built chassis, with all the vital custom-built features, will be sold at a popular price. Just what this price will be we cannot state at this time."

Form Association For Garage Men of Boston

The Garage Association of Metropolitan Boston has been formed by a large number of men who conduct garages in Boston and vicinity. It has a membership, both active and associate, of about 500 scattered throughout Massachusetts. The officers are: President, James N. Scully; treasurer, W. F. Bennett; secretary, H. R. Tosdal.

The organization plans to have regular meetings at which matters concerning the business will be discussed, and the membership increased to cover the entire state. It has a wonderful possibility of becoming a New England organization.

The aim is to bring the garage men in closer contact with each other, and also disabuse the mind of the general public that the proprietors of such places are out to get all they can from motorists.

HERSCHELL-SPILLMAN CHIPS.

"Chips," gathered up every little while and published by the advertising department of the Herschell-Spillman Motor Co., North Tonawanda, N. Y., is a breezy publication. The last issue contains this announcement:

"To the Motor Vehicle Trade of America:

"The Herschell-Spillman Motor Co. announces that the forces of reconstruction have been at work in our establishment at North Tonawanda, N. Y. The salutary changes resulting have strengthened our personnel, extended our resources, bettered our facilities. Our well known high standard of quality alone remains unaffected.

"In fact, what this reorganization achieves is the means to maintain the superior quality of 'H-S' motors and at the same time to produce in quantity. Our preparedness to supply larger demand is fully effected.

"We are specializing on our four-cylinder motor whose performance indorses it to all automotive vehicle makers. These motors are propelling many of today's leading cars, trucks and tractors.

"We guarantee materials, workmanship, horsepower and deliveries."

An interesting account is given of the company's history, personnel, plans, facilities and products.

NEW PRESIDENT ELECTED FOR DU PONT CO.

The Executive Board of the E. I. du Pont de Nemours Co. has announced that Pierre S. du Pont has resigned from the presidency of the company. Irenee S. du Pont, chairman of the executive committee, succeeds him as president, and Pierre S. du Pont becomes president of the board of directors. These changes are effective May 1.

BOSTON GARAGE HAS COMFORTS FOR CHAUFFEURS.

With chauffeurs' rooms with shower baths and other new features, the Portland Street Garage, 119-127 Portland street and 190-200 Friend street, Boston, will be a thoroughly modern establishment. There will be a women's room and a tire and accessory store on the first floor.

The building, recently completed, is of six stories, built of reinforced concrete, fireproof and has a capacity of 400 cars. There are three high power elevators.

There will be day and night service for both commercial and passenger cars.

The Custom House Garage, 12-14 Custor House street, a seven-story fireproof building erected on the site of the Old Custom House, is a branch of the Portland Street Garage It has a repair shop. The lessee is the Portland Street Garage, Inc.

PRISONERS MAKE LICENSE PLATES FOR AUTOS.

The New York assembly has passed bills, which have been signed and made laws, whereby prisoners at Sing Sing manufacture automobile license plates, chauffeurs' badges and other accessories distributed by the state to automobilists.

Massachusetts motor cars that are registered next year will also be equipped with prison made number plates. The inmates of the state prison at Charlestown have started work on the 1920 plates and they have an order before them for considerably more than 500,000 plates, enough to keep them busy for some months. This is a new departure for the State Highway Commission, which has usually awarded the contract to the private concern making the lowest bid.

LOS ANGELES BRANCH FOR FLETCHER CARBURETOR.

L. V. Fletcher & Co., New York, carburetor manufacturer, has opened a factory branch in Los Angeles, with M. J. Siebert in charge as manager. Mr. Siebert was recently discharged from the army, after a year's active service at the front in France. He was for 10 years a road salesman for the Neptune Meter Co., New York, of which corporation the Fletcher firm is a subsidiary.

The Fletcher carburetors are manufactured complete from rough castings to the finished product in the foundries and shops of the Neptune company.

J. J. Frank has been appointed district manager of sales for the Fletcher carburetor in the Metropolitan district of New York. He formerly owned and operated a large repair and service business in New York.

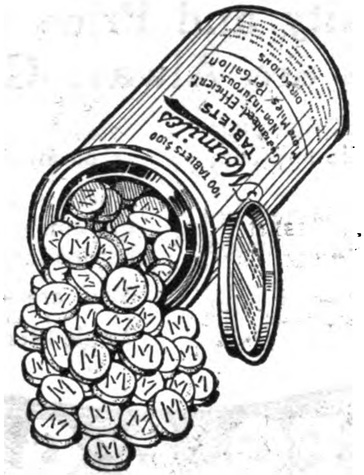
G-M-C BUYS LANCASTER STEEL PRODUCTS.

The Lancaster Steel Products Co., Lancaster, Pa., has been sold to the General Motors Co. and will be operated as a subsidiary of that company.

Mormiles

TRADE MARK

Saves Gasoline
Adds Mileage
Easy to Use



IN RED
CANS ONLY

Makes Your Motor Self-Cleaning

Mormiles

—makes every drop of gasoline **clean the motor as it goes.**

—energizes weak, logy, low grade gasoline—makes every drop deliver full power to the rear wheels.

—completely dissolves in the gasoline. Unlike a liquid it becomes an integral, evenly distributed part of the fuel which passes through the motor out of the exhaust.

—comes in convenient tablet form only. No messy, ill-smelling liquid to measure out, spill or evaporate.

—can be carried in tool box or under the seat—at hand whenever the gas tank is filled. **Use one tablet for each gallon of gas.**

Guarantee:

Not to injure finest motor; to increase mileage; to increase power; to keep motor free from carbon—**or money refunded.**

Testimonials:

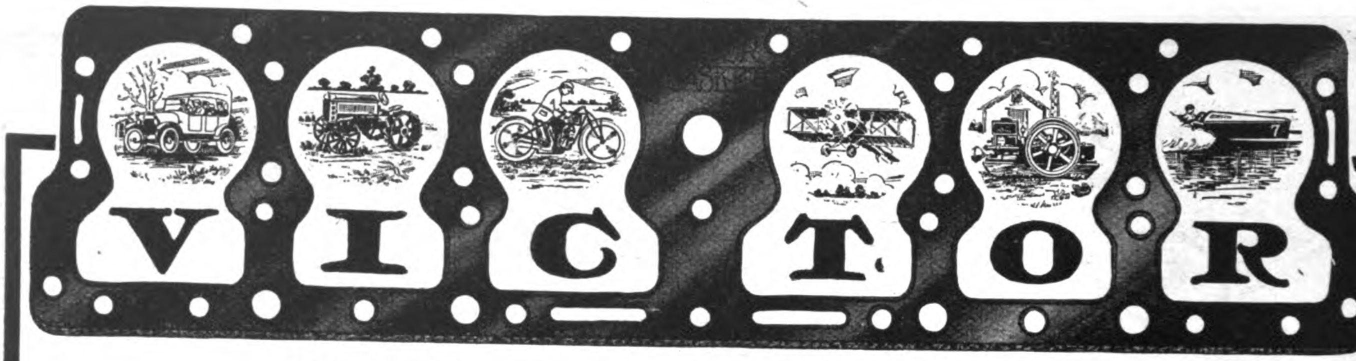
Hundreds of voluntary testimonials are on file from nearly every state in the Union, showing increased power, clean motors, and from 20 to 50% increased mileage.

Standard $1.00 Package Free

Dealers and Jobbers:

Write for our proposition.
It is unusually attractive.

This Coupon Worth $1.00—Use It Today
MORMILES CO., 226-8 S. La Salle St., Chicago;
Enclosed find $1.00 for two regular $1.00 cans of Mormiles, a special offer for introductory purposes only—where dealer cannot supply.
Name________________________
Address________________________



When Quality and Price are a Factor Victor Gaskets are Always Given Preference

Victor Gaskets are made to a standard that guarantees the longest possible service life and complete satisfaction.

In the list of regular users of Victor Gaskets are the names of practically all the leading producers of cars, trucks, tractors and engines.

Victor Gasket dependability is an asset of value to both maker and owner—that is why Victor Gaskets are used by almost all manufacturers and recommended by the trade.

There is just the Victor Gasket made for any requirement. The same personal attention is accorded large or small orders.

You are invited to submit your specifications.

Trade literature and discounts at request.

VICTOR MFG. & GASKET CO.,

• WORLDS LARGEST GASKET MANUFACTURERS •

TROY & 21st, STS., CHICAGO, U. S. A.

The Little Salesman

April Issue Now Ready! Get This!

CONFIDENTIAL Illustrated Price List of **AUTO ACCESSORIES**

PRICES DOWN ON 765 ITEMS

You should know them—This information is **FREE**. Write for it today.

The Little Salesman
New England Mills Co.
Our Guarantee
Absolute satisfaction and you to be the sole judge
Paid if you are not satisfied

SEND FOR IT NOW!

NEW ENGLAND MILLS CO.
1219-1221 Michigan Ave.
Dept. A. CHICAGO

WE SELL WHOLESALE ONLY!

TRACTOR WORLD

Monthly 20c the Copy $2 the Year

✣

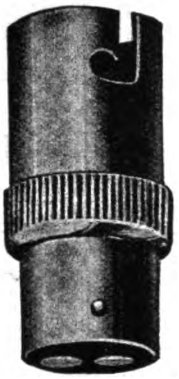
A Tractor Journal
devoted to the
tractor industry and trade

✣

Published by
The Automobile Journal Publishing Company
PAWTUCKET, RHODE ISLAND

A New Device for Ford Cars

HEADLIGHT EQUALIZER



THIS little device is inserted in the lamp socket of the right hand headlight, is locked into place by the knurled locking nut, and the lamp plug is then inserted into the open end of the Equalizer.

The following results are obtained:

Much brighter lights.
Uniform light at all speeds.
Bright lights at low speed.
Protection for the bulbs.

If one bulb burns out, the other remains burning.

Ford owners have always been bothered with poor lights at low engine speeds. This device corrects all this. No electrical or mechanical knowledge required for attaching, and the cost is insignificant.

List Price 75 cents each, subject to our regular trade discounts.

Culver-Stearns Manufacturing Company

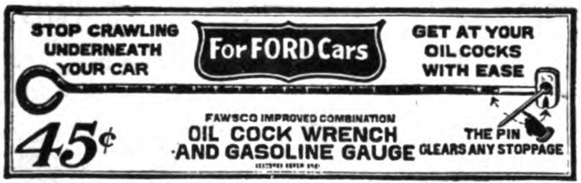
WORCESTER, MASS. **DETROIT, MICHIGAN**

Distributed by

J. H. Faw, Inc., 37 Warren St., New York, N. Y. Manuel Bergman, 1777 Broadway, New York, N. Y.
M. A. Bryte, Inc., 543 Golden Gate Ave., San Francisco, Cal.; 2208 South Michigan Ave., Chicago, Illinois.

SELL A TOOL

A PATENTED WRENCH WITH CLEANING PIN



STOP CRAWLING UNDERNEATH YOUR CAR

For FORD Cars

GET AT YOUR OIL COCKS WITH EASE

45¢

FAWSCO IMPROVED COMBINATION OIL COCK WRENCH AND GASOLINE GAUGE

THE PIN CLEARS ANY STOPPAGE

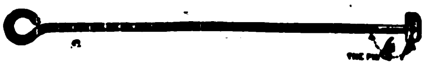
Facsimile of Display Card furnished with each dozen

A notched stick will turn an oil cock, but it may be stopped up instead of empty. The cleaning pin is patented.

FAWSCO IMPROVED COMBINATION

OIL COCK WRENCH AND CLEANER

AND GASOLINE GAUGE



The tool—22" long

This tool is the one most needed by all owners of Ford Cars as it will not only accurately measure the Gasoline in your tank, but provides the only sure means of learning whether you have oil in the crank case or not.
Made of coppered Bessemer steel rod, nickel plated and black enameled and is guaranteed to give complete satisfaction.
Packed 12 in a heavy corrugated carton, one of them mounted on a display easel; the balance in separate envelopes.

Your Jobber can supply

Manufactured by

J. H. FAW, Inc.

37 WARREN STREET **NEW YORK CITY**

Wanted: Distributors

Manufacturer of well known and nationally advertised automobile shop equipment will consider applications from jobbers and distributing agencies for exclusive territorial rights. This is one of the easiest selling and most profitable selling lines open today, and the opportunity is offered only because of a change in selling policy. In answering please state lines you are now handling on a similar basis, number of salesmen and territory covered. None but high grade connections will be considered, and inquiries will be treated as confidential. Address

John H. Thomas, Sales Manager

416 Anisfield Building, Cleveland, Ohio.

The "FORD" Heel Rest

Sixe 7½ x 4½ x ¼ thick

Made of Frosted Aluminum

Used on mat or floor boards, sold by all Dealers, or will be sent Post-paid, **$1.00.**

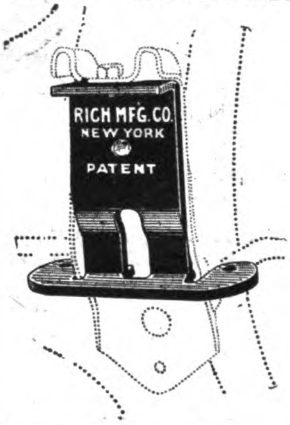
Made only by

J. L. LUCAS & SON, Inc.

BRIDGEPORT, CONN.

"RICO" RE-INFORCEMENT BRACKETS

For Ford Crank Cases



"Rico" brackets prevent the vibration which causes the crank case arms to break. The "Rico" is just as effective when attached, after the crank case arms have been broken. The "Rico" brackets are easily and quickly attached and nothing but a few bolts are necessary. Any one can do the work.
Thousands of these arms break daily. The "Rico" insures against repair bills, delay and vibration that weakens the engine.
Can better car insurance be bought?

List Price $3 per pair.

Rich Manufacturing Company

1777 Broadway, New York City.

DETROIT STORAGE BATTERIES

HAYES WIRE WHEELS

NEW ENGLAND SALES & SERVICE

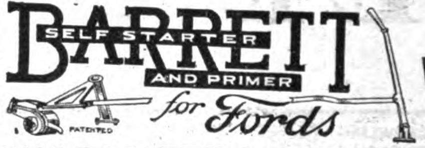
MITCHELL & SMITH INC.

1090-1092 COMMONWEALTH AVE. BOSTON, MASS

WE REPAIR ANY MAKE OF BATTERY OR WIRE WHEEL

FITS ALL MODELS OF FORD CARS

No Cost of Upkeep



No Wearing Parts

GUARANTEED 5 YEARS

10 Days Trial. Money Refunded if Not Satisfactory.

After many years of continuous experimenting we have perfected this starter. All imperfections of other starters eliminated; all good features improved upon. It will start your engine instantaneously even in zero weather. Made of the best material. Write us for full particulars.

BARRETT MOTOR STARTER MFG. CO., INC.

1777 BROADWAY, NEW YORK

AUTO PARTS

SAVE 50-90% FOR 400 CARS

POPE, PACKARDS, PIERCE, BUICK, STEVENS-DURYEA, KNOX, OVERLAND, ETC.

Motors	$25.00 up	Presto Tanks	$ 4.50 up
Magnetos	4.00 "	New Spotlights	2.00 "
Carburetors	3.00 "	Generators	10.00 "
Rear Axles	15.00 "	Gears	1.00 "
Front Axles	5.00 "	Bearings	1.00 "
Cylinders	5.00 "	Radiators	10.00 "

$12 Diamond Bumpers............$5.50

Jobbers in Bankrupt Auto Supplies.

BRIGHTMAN AUTO EXCHANGE

84 Wooster St., Hartford, Conn.

GARDNER CARBURETORS

FOR FORD CARS

Dealers write us for special price.
Salesmen with Ford Cars Wanted.

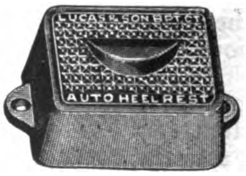
FACTORY SALES COMPANY

Sun Building, Detroit, Mich.

Auto Mailing Lists

Send for our free complete Price List covering Auto Dealers, Owners, Ford Dealers, Truck Dealers and Owners, Garages, Auto Mfrs. and etc., any state.

A. F. WILLIAMS, Mgr. of List Dept.
168 W. Adams St., Chicago. Franklin 1182.



AUTO HEEL RESTS.
Made in 4 sizes. ½", 1", 1½", 2" of frosted aluminum. Sold by all dealers, or will be sent post paid 75c. Made only by
J. L. LUCAS & SON, INC.
Bridgeport, Conn.

Classified Advertising

BRINGS BIG RETURNS

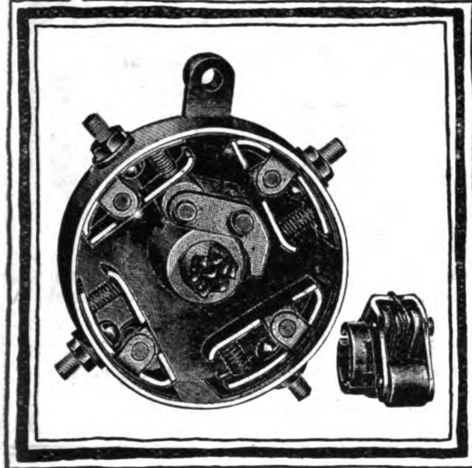
20 Cents a Line, Seven Words to Line.

(When Writing to Advertisers, Please Mention Accessory and Garage Journal.)

FORD OWNERS

ELIMINATE YOUR TIMER TROUBLES

BAY STATE TIMER



Insures You Car Service

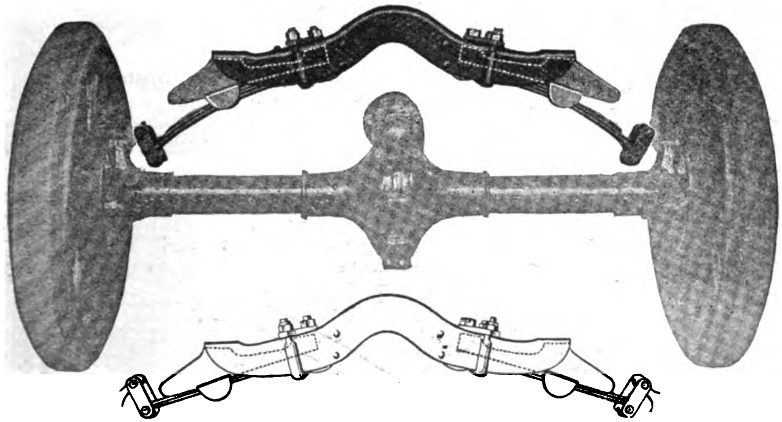
Because it is designed to afford you results obtainable with no other type or design of timer.
Because it is constructed from materials that specially resist wear to a design that obviates wear.
Because it is self-compensating and timing cannot be changed by wear, no matter how long it is used.
Because the ignition is certain the fuel consumption is reduced to minimum.
Because the expense of ignition restoration is obviated.
Because the engine will accelerate quicker.
Because there is practically no noise, and there is thorough satisfaction.
BAY STATE TIMERS are service proven. Every claim for superiority is conservatively made and based upon experience.
The standard of BAY STATE TIME design is owners' satisfaction. We guarantee this to you.

BAY STATE PUMP COMPANY
100 PURCHASE ST., BOSTON, MASS.

OLSON AUTOMATIC SPRING ADJUSTERS

(Pat. Pending)

Guaranteed To Make The FORD TRUCK *Ride Like A Pleasure Car* - - $15.00



NOT a "Shock Absorber."

It is installed without altering the truck. Only remove first six spring leaves and install in thirty minutes.

"It's the Curve That Does It."

DEALERS!

Every Ford Truck Owner realizes the absolute necessity for a device guaranteed to make the Ford Truck Ride EASY.

When we say 'EASY' we mean as easy or EASIER than the Pleasure Car.

IT IS POSITIVELY THE BEST SELLER OUT!

Write for Our Dealer's Proposition — It Can't Be Beat.

SWEDISH CRUCIBLE STEEL COMPANY

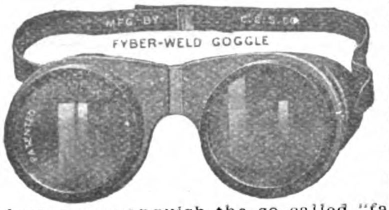
Old Established Steel Manufacturers, Operating Two Large Plants in

DETROIT, MICH. **WINDSOR, ONT.**

GOGGLES FOR WELDERS.

Fitted with "Essentialite" Lenses.

THE FIBRE WELD.



Frame: Vulcanized fibre, non-conductor of heat and electricity, non-inflammable and infusible not affected by moisture, leather center, ventilated side pieces, adjustable elastic head band. We have demonstrated conclusively that with these lenses we vanquish the so-called "fatigue-weariness" and headaches caused by Ultra Violet and Infra Red rays. Circulars and prices at request. Price each, prepaid, **$3 pr.**

Manufactured by

CHICAGO EYE-SHIELD COMPANY

2300 Warren Ave., Chicago, Ill.

ADAMSON

VULCANIZERS

The Only Complete Line

MODEL "E" 5-Minute Vulcanizer repairs tube punctures—Price $1.00 complete.

MODEL "U" repairs tread cuts and abrasions, mends inner tubes—Price $2.00 complete.

MODEL "T" makes ordinary tube repairs—Price complete $1.50.

MODEL "S" for garage use, makes tube repairs up to 12 inches—Price complete $12.00.

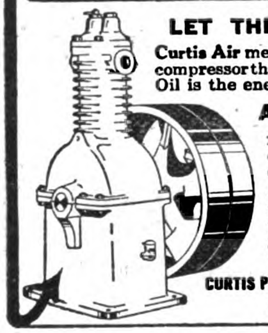
Sold by Jobbers and Dealers Everywhere.

ADAMSON MFG. CO., - - - East Palestine, O.

CURTIS AIR FREE FROM OIL

MOTORISTS *Have* CONFIDENCE IN THIS SIGN

LET THEM FIND IT AT *YOUR* DOOR.



Curtis Air means more mileage, because Curtis is the only air compressor that can't flood cylinder with more oil than it can use. Oil is the enemy of rubber. It rots tires, causing blow-outs.

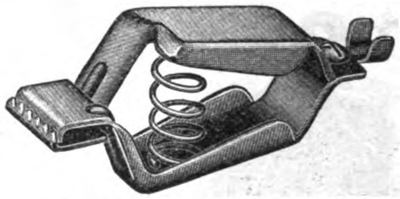
A Curtis Compressor Is Dependable

requires practically no attention, costs very little, quickly pays for itself, always delivers the kind of cool, clean air that makes tires last longer.

5 sizes and 125 combinations. Write for full particulars and let us tell you why the Curtis will prove to be your best investment. Ask your jobber for prices—but be sure and mention Curtis —the name is your protection against substitution

CURTIS PNEUMATIC MACH. CO. 1621A Kienlen Ave. St. Louis, Mo.
Branch Office: 531A Hudson Terminal, New York

UNIVERSAL BATTERY CLIPS



Offer a quick and ready means of connecting storage batteries for charging. Simply fit your connecting cords with these clips and snap them over the battery terminals.

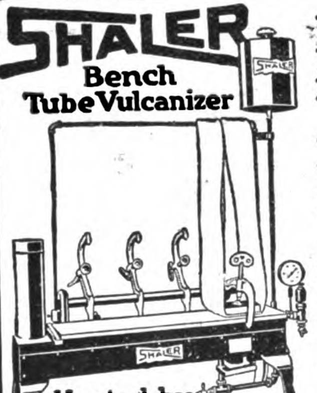
No. 21-A—lead plated—1½" spread of jaws.

Sample mailed postpaid for 15c in stamps.

Single Lots, Each 20c. Lots of 10, Each 15c.
Lots of 100, Each 12½c.

R. S. MUELLER & CO., 431 High Avenue, Cleveland, O

SHALER
Bench Tube Vulcanizer



Heated by Gas or Gasoline

Big Extra Profits for Every Garage

This handy Shaler Steam Heated Tube Vulcanizer makes four perfect tube repairs at one time—mends any kind of tear, cut or puncture in any tube perfectly.

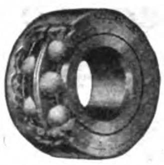
Has automatic heat control—no danger of explosions or damaging tubes. Anybody can operate it—does quick work—has large capacity and makes money fast.

Can be had with either gas or gasoline burners. Outfit complete, only $35.00, Subject to Trade Discount.

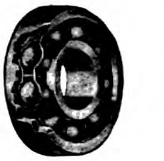
Send at once for our large, illustrated catalog describing SHALER Vulcanizers for motorists, garages and tire repair shops.

C. A. Shaler Co., 253 Fourth St., Waupun, Wis.

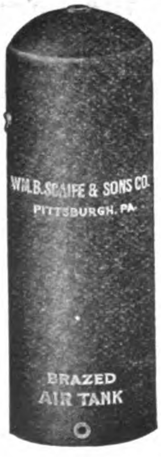
NEW DEPARTURE BALL BEARINGS



Strength
Stamina
Service



The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee


WM. B. SCAIFE & SONS CO.
PITTSBURGH, PA.
BRAZED AIR TANK

SCAIFE COPPER-BRAZED AIR TANKS

are positively guaranteed to hold air indefinitely without loss of pressure.

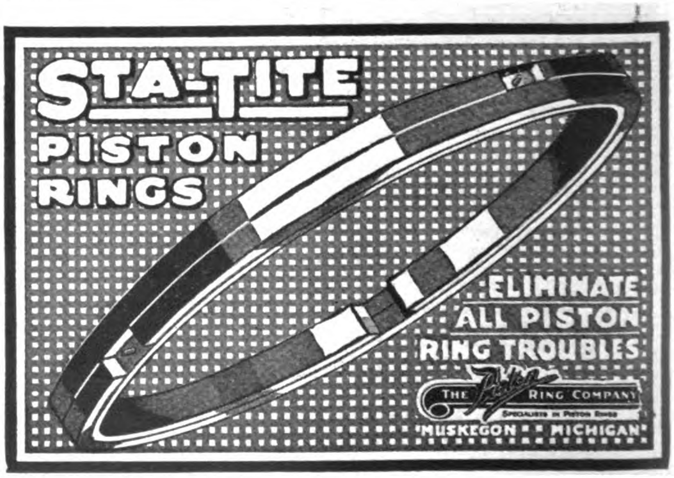
CAUTION

Do not confuse Scaife Copper-Brazed Tanks with the cheap Welded or Soft-Soldered Tanks made by others.

We Also Manufacture
SCAIFE GASOLINE STORAGE OUTFITS

Send for Catalogues.

WM. B. SCAIFE & SONS CO.,
First National Bank Bldg. PITTSBURGH, PA.



(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

TIP-TOP
OF AKRON
TI-RE-PAIR OUTFIT

The Best Equipment

It pays to buy the best equipment if starting in the tire repair business or adding to present equipment. Tip-Top Ti-Re-Pair Equipment is regarded by tire manufacturers, tire repair schools and repair shops as representing the highest standard of quality in tire repairing equipment that it is possible to produce.

TIRE RETREADING

The high price of tires has created a big interest in tire retreading. Motorists who have worn down their tires until no longer usable want new treads put on.

Every tire repair shop should have one of these recently developed Type E Cavity Retreading Outfits, which operates on the same principle as the regular cavity vulcanizer used for repairing casing punctures and blowouts.

Cost of outfit with self-contained steam boiler is much less than that of a vulcanizing kettle and separate steam boiler. (The use of large and expensive retreading kettle outfits is no longer necessary since the development of this type of retreading equipment—and the elaborate, difficult and time-consuming system of wrapping tire is not required with the cavity method). Outfit is very compact and takes up little room in the shop.

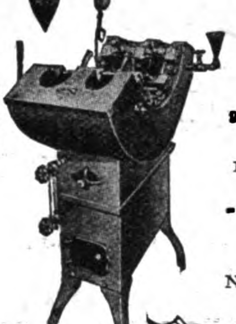
TIRE REPAIRING

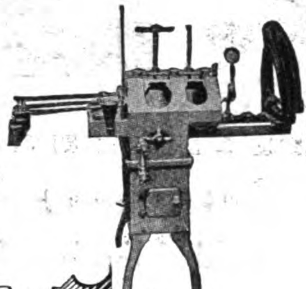
Motorists who have never bothered with tire repairing are now having casing and inner tube punctures and blow-outs repaired by the vulcanizing process.

Now is the timely time to start in the tire repair business.

We make a complete line of Tire Repairing Equipment—cavity vulcanizers of both the self-contained boiler and separate boiler types—Tube plates—Steam Boilers—Bead Molds—Tire Repair Tools. No matter what you have need of we are in position to supply it to best advantage.

Write us today for literature describing our full line of tire repair equipment, and data regarding vulcanizing and the possibilities for profit in the tire repair business.





THE AKRON RUBBER MOLD & MACHINE CO.

945 SWEITZER AVE., AKRON, OHIO.
Pacific Coast Distributors,
GEO. W. ENO RUBBER CO.,
1059-63 Post St., San Francisco.
1026 So. Los Angeles St., Los Angeles.

Return This Coupon for Free Booklet. A.G.&J.

Name........................ Address........................

SPECIAL SALE
AUTO TIRES

GUARANTEED 4000 MILES

If a tire fails to give service of 4000 miles we will replace it with another tire for ½ price marked below:

Size	Plain	Non-Skid	Tube	Size	Plain	Non-Skid	Tube
28x3	$6.45	$7.45	$2.30	34x4	$14.95	$15.95	$3.45
30x3	7.45	8.35	2.15	35x4	15.45	16.95	3.55
30x3½	8.95	9.95	2.40	36x4	15.95	17.50	3.60
31x3½	9.45	10.45	2.45	34x4½	18.45	20.45	4.30
32x3½	9.95	10.90	2.50	35x4½	18.95	20.95	4.40
34x3½	10.45	11.30	2.80	36x4½	19.45	21.45	4.45
31x4	13.45	14.60	3.20	37x4½	19.95	21.95	4.50
32x4	13.95	14.95	3.30	35x5	20.95	23.45	5.15
33x4	14.45	15.45	3.35	37x5	21.95	24.75	5.30

Deduct 2 Per Cent. When Check or Cash Accompanies Order.
10% Deposit Required on All C. O. D. Orders.
We Carry a Full Line of New and Reconstructed Tires.

ATLAS TIRE COMPANY, Tires and Tubes Shipped Express Prepaid

Telephone Poplar 2970
822 N. BROAD STREET, PHILADELPHIA, PA.

FORD REPAIR MEN Cut Your Labor Costs to Just One-Third What They Now Cost You by Ordinary Methods and Do the Work Better Than the Best Job You Ever Sent Out.

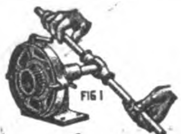


FIG 1

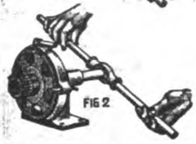


FIG 2

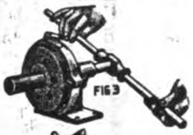


FIG 3

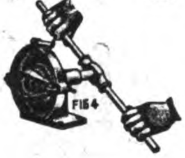
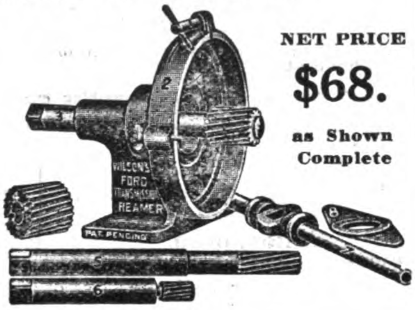


FIG 4

This great saving of time means a big additional profit, but is now a loss. There is BIG MONEY in Ford repairing if you have efficient tools that save time and eliminate guesswork and experts. The two outfits listed here will save their cost on a very few jobs and enable you to render the quickest possible service to your trade.

TRANSMISSION REAMING MACHINE reams every bushing in a **Ford Transmission** to a perfect fit and alignment, so the gears mesh perfectly on their pitch diameter and run without noise or excessive wear. Impossible with any other tool equipment ever offered. **30 Minutes to Completely Overhaul and Re-Bush a Transmission,** making it as good as new. Can you beat it.



NET PRICE
$68.
as Shown Complete

Main Bearing and Connecting Rod Aligning Reamer

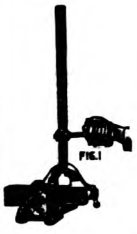


FIG. 1

30 Minutes to Fit Perfectly All Main Bearings and Connecting Rods.

"A DAY'S JOB DONE IN HALF AN HOUR."

Pilots guide the reamer. No chance to make mistake. Far superior to any other known method. Motors put up this way can be started by hand. I have only a limited supply of this material on hand. Send your order promptly to avoid disappointment. One per cent discount if you mention this magazine. Send for catalogue of other special tools, reamers, etc.

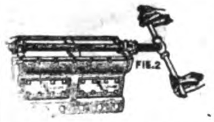


FIG. 2

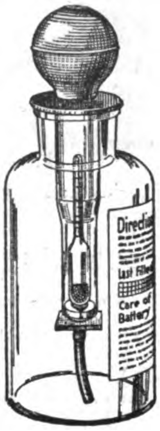
Price $28.

I Make the BEST HONEYCOMB RADIATOR at any price.

K. R. WILSON

10-16 LOCK STREET BUFFALO, N. Y.

DEALERS—GARAGEMEN



When placing your next order for hydrometers insist that your jobber furnishes

WORKRITE Hydrometers

If he does not handle the "WorkRite" do not let him talk you into any "just-as-good" article. Most of the leading battery manufacturers use and sell the WorkRite exclusively. If you once handle the high grade WorkRite Hydrometer with its many new features you will never again be satisfied with the "just-as-good" kind. Write us for the name of nearest jobber who will furnish you the genuine "WorkRite."

WorkRite Hydrometer Outfit, $1.50.
WorkRite Hydrometer, only $1.00.

THE WORKRITE MFG. CO.
5614 EUCLID, CLEVELAND, O.

PerfectionSprings

2000 Ford Fronts
200 Maxfer Rear
200 Smith Form A Rear
ALL OTHER MAKES

Immediate Deliveries

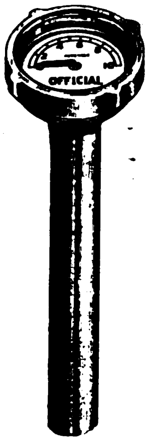
Dealers write for prices

Geo. Lawrence, Inc.
Cambria Street, Boston

Anti-Borax WELDING FLUX

OUR Brazing and Welding Fluxes for Blacksmith work and Acetylene or Electric Welding of all kinds of metal are considered by all users to be the best on the market. Order Anti-Borax Fluxes and get the best results.

MANUFACTURED BY
Anti-Borax Compound Company
FT. WAYNE, INDIANA.



THE
"Official" Ford Filler Cap Gauge
USEFUL—ACCURATE—

A dependable instrument that tells the amount of gas in the tank at a glance by lifting off the cushion. It saves time, trouble and worry when desirous to know the gasoline supply.
Is simple in construction—nothing to get out of order.

GUARANTEED FOR FIVE YEARS.

No installing required—takes place of filler cap. Price, $1.25.

WRITE US TODAY FOR A CATALOG of our useful auto accessories. It will pay you.

AMERICAN AUTOMATIC DEVICES CO.
3264 W. GRAND AVE., CHICAGO

"OHIO CARBON PRODUCTS"

"OHIO"

BRUSHES

FOR AUTOMOBILE
STARTING MOTORS AND LIGHTING GENERATORS

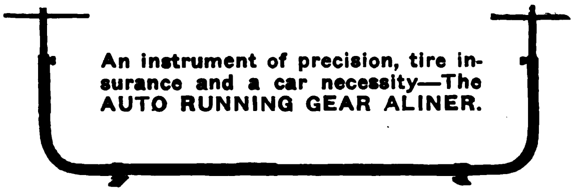
GARAGEMEN TAKE NOTICE
Write for Our No. 5 Car List for Information on New Cars

THE OHIO CARBON COMPANY
1900 FULTON PLACE, CLEVELAND, O.

Millions of Dollars Worth of Tires are Wasted Every Year

This great money loss and needless destruction of tires can be stopped.

Tires on wheels that are out of alignment will run but a few hundred miles. With proper alignment tires will usually run their guaranteed mileage.



An instrument of precision, tire insurance and a car necessity—The AUTO RUNNING GEAR ALINER.

Equipment that will save the tires and loss in service.

Made of one-inch tubing malleable castings, plungers and pointers steel, nickel plated. Graduated scales, etched on brass.

Maj. E. V. Rickenbacher, famous racing driver and aerial warrior, says:

It eliminates all the uncertain methods formerly employed, such as chalk lines and straight edges and is truly an instrument of precision.

The Auto Running Gear Aliner

Is 100% efficient, desirable and necessary in public or home garage, tire shop or accessory store. All measurements are mechanically made and mechanically correct. Anyone can operate it. It will show at a glance if the front wheels are in alignment.

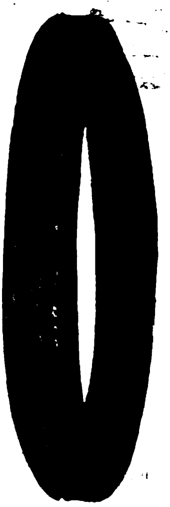
When aligning wheels it makes the operation absolutely correct. Compare the Auto Running Gear Aliner with chalk line, square edge and other make shift methods. With it the repairer and owner does away with all guess work, saves time and worry.

The car rides and steers easier and the steering gear is protected against undue stress and wear.

J. A. Roper, Cincinnati Branch of the B. F. Goodrich Rubber Company, says:

Your device has made it possible for us to prove our point many times and through making it possible for the customer to see has preserved much good will.

It would be a big saving to all tire companies as well as the users of the tire if they would have access to a device of this kind periodically, if only for the satisfaction of knowing that the wheel condition is right.



An example and exact reproduction of a tire run less than one hundred miles with wheels out of alignment.

Used and recommended by all leading tire makers, their branches, managers and dealers.

Full information and discounts at request.

MECHANICAL UTILITIES CORPORATION

5 NORTH LA SALLE STREET, CHICAGO, ILLINOIS.

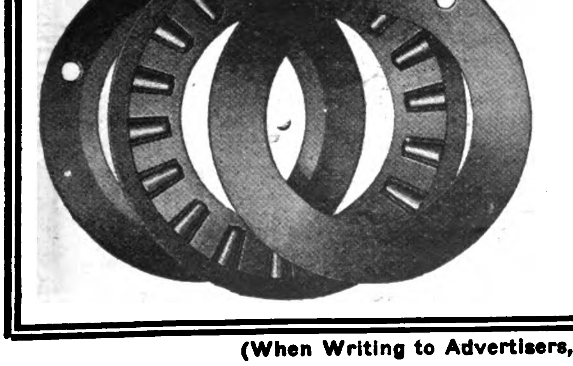
THE SIMMONS TAPER ROLLER THRUST FOR FORD AND CHEVROLET CARS

Prevents Rear-Axle Trouble and Expense.

The construction of the Simmons Taper Roller Thrust is such that if the differential case sags or drops down contact is still maintained, because of the heavy structure of the retainer plate. Protection must be given to gears on both sides of the differential case, which is subjected to extremely heavy strain when the car makes a sharp turn. The present Ford type of brass-to-steel thrust plate wears rapidly, even under favorable conditions, causing "misalignment" and rapid wear of gears.

A pair of Simmons Taper Roller Thrusts make the rear axle entirely roller bearing (roller thrusts on both sides differential); thereby eliminating practically all rear axle trouble, a radical improvement over the regular Ford type of plain flat steel-to-brass thrust washer.

The Simmons Taper Roller Thrust has one hundred times more real bearing surface than any BALL thrust now on the market, is sold in pairs only, and is used on both sides of the differential case. The entire differential is thereby protected from gear and end thrusts.



Your dealer or repair man recognizes this as the only proper type of thrust bearing. If your dealer or jobber cannot supply you write us.

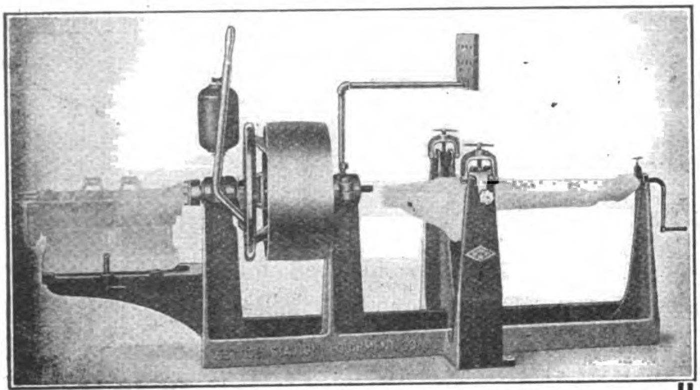
PRICE $3.50 A PAIR $5.00 IN CANADA

Mr. Jobber-Dealer-Repairmen: NOW is the time to place an order for a stock of Simmons Taper Roller Thrusts.

Manufactured by

THE SIMMONS MANUFACTURING CO.

3405-11 Perkins Ave. Cleveland, Ohio



The American "Junior" Combination Bearing Burning-in and Motor Test and Running-in Stand

WITHIN THE REACH OF EVERY FORD DEALER AND REPAIR MAN

The **American Junior** is constructed so that the bearings of the Ford Block are exposed to the view of the operator while being burnt-in.

The burning-in Base is constructed with openings large enough so that the Pistons and Connecting Rods can be installed or fitted without removing the Block from the machine. The Block is held in position with quick acting clamps set in guides.

The **American Junior** is constructed along the solid unit principle, no bolts or rivets are used in the frame. This eliminates vibration and also the danger of the frame shaking loose from constant use.

The Motor Test part of the machine can be operated independently or at the same time that the bearings are burned in. This machine has the quick adjusting alignment device on right hand motor support for aligning the Universal Joint quickly and accurate. The clutch is also equipped with a tryout wheel so that the stiffness of the motor and bearings can be determined without removing either unit from the machine.

The **American Junior** comes completely equipped with gasoline tank inlet and outlet water connections, and coil support as shown in illustration.

Price $197.50

We manufacture a full line of equipment for Ford and Fordson Service Stations. Write for Catalogue.

All equipment manufactured by this company is approved by the equipment department of the Ford Motor Company before it is placed on the market.

SERVICE STATION EQUIPMENT COMPANY, Inc.
MANUFACTURERS
1201-1211 Cortland Street Chicago, Ill.

VARNOLA CLEANER
VARNOLA POLISH
CLEANER
POLISH
Varnola

RENEW CAR FINISH PERFECTLY

THEY restore varnish and enamel, on wood and metal, to the original appearance. The Cleaner removes grease, dirt or corrosion from the surfaces and the Polish gives a high lustre that will endure from 30 to 60 days.

A pint can of the Cleaner and a quart can of the Polish will suffice for any size or type of car for six months. The price for the two, sold only in combination, is **$1.50**

JOBBERS AND DEALERS

You know the reasons why other automobile cleaners and polishes do not satisfy. Varnola products are sold with a guarantee of satisfaction. The demand is constantly growing. The sales probabilities are extremely large. Our trade discounts are very liberal. Write for them today

American Manfg. & Supply Company
BOSTON 9 WILTON STREET (Allston District) MASS

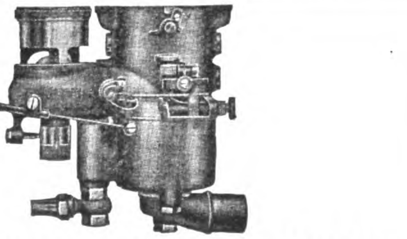
A·B·C

STARTING & LIGHTING SYSTEM FOR FORD CARS
TWO-UNIT

$115 Installed F. O. B. Detroit

Splendid Opportunity for Dealers
Prompt Deliveries—NOW

A. B. C. STARTER COMPANY
DETROIT, MICH.

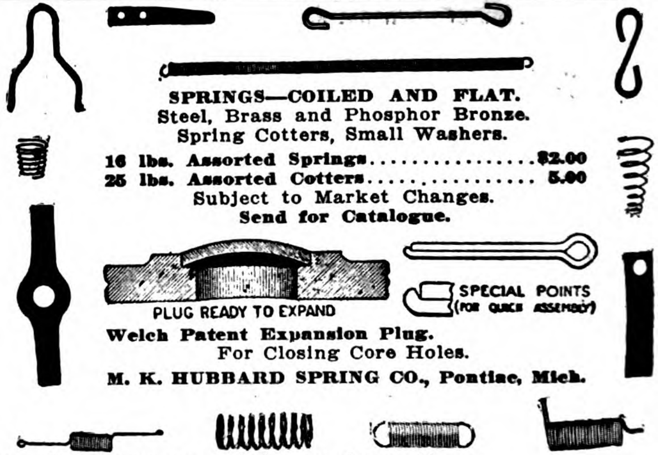


YOUR CUSTOMER HAS BEEN LOOKING FOR SUCH A CARBURETOR FOR A LONG TIME

More Mileage—More Power—More Speed

Get him to try it for 15 days. Satisfaction guaranteed.

WEBBER MANUFACTURING COMPANY
Factory: 66 Stanhope Street, Boston, Mass. New York Branch: 1765 Broadway


PLUG READY TO EXPAND
SPECIAL POINTS (FOR QUICK ASSEMBLY)

SPRINGS—COILED AND FLAT.
Steel, Brass and Phosphor Bronze.
Spring Cotters, Small Washers.

16 lbs. Assorted Springs	**$2.00**
25 lbs. Assorted Cotters	**5.00**

Subject to Market Changes.
Send for Catalogue.

Welch Patent Expansion Plug.
For Closing Core Holes.
M. K. HUBBARD SPRING CO., Pontiac, Mich.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

Big Money in Electrical Repairs!

If you cannot repair electric starting and lighting equipment intelligently, your customer will go elsewhere for this service. He will take the rest of his trade with him. There is more money in electrical repairs than in any other department of the garage business. The demand is enormously increasing.

Weston

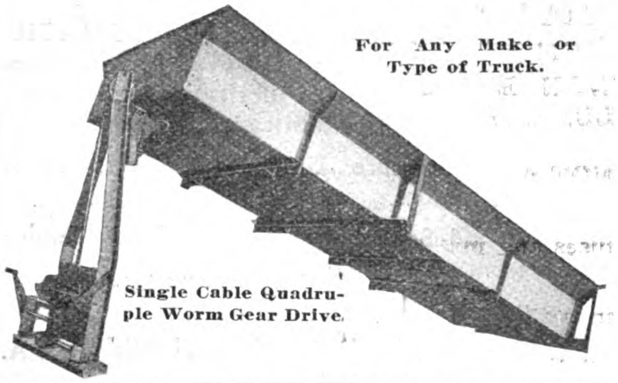
Model 280
GARAGE
TESTING INSTRUMENT

is the best, the most reliable and therefore the cheapest electrical equipment for you. It enables you to determine promptly and accurately the condition of the electrical equipment of any automobile, just where the trouble is and just how to remedy it.

We are returning to normal conditions as rapidly as possible, but we necessarily must complete government work in hand before full normal service can be rendered.

WESTON ELECTRICAL INSTRUMENT CO., 103 Weston Ave., Newark, N. J.
Branch Offices in the Larger Cities.

THE PEERLESS HAND HOIST



For Any Make or Type of Truck.

Single Cable Quadruple Worm Gear Drive.

A wonder in efficiency and speed. It will fit any chassis and body. Weighs but 200 pounds. Simple, fool-proof, wholly dependable and will last for years in the hardest service.

Any one that can drive a truck can hoist the heaviest load to 30 or 50 degrees in the longest body in less than two minutes. The smaller the body and load the quicker the action.

But two gears are used, quadruple worm and gear (both machine cut) and housed to protect from dirt and dust. The single cable makes an even pull. Compact and can be installed without drilling holes in chassis frame. The body hitch is also furnished.

We specialize in building all-steel bodies for any need.

Write for complete information.

THE AUGLAIZE MOTOR CAR CO.
NEW BREMEN OHIO

TRADE AMBU MARK

Cadmium Tester

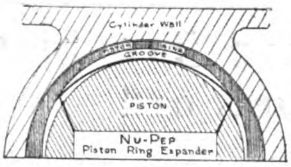
Enables you to test either set of battery plates, accurately and quickly. Consists of set of Cadmium leads and specially calibrated positive and negative voltmeter. Complete, $25. Voltmeter alone, $22.50. Leads alone, $3.25.

Automobile Storage Battery

Its Care and Repair

This leather bound book tells in non-technical words all about this vital part of every car—and how to correct all troubles. Every owner should have one—5 days' examination, $5.00, postpaid.

AMERICAN BUREAU OF ENGINEERING
1032 WABASH AVENUE, CHICAGO



"Nu Pep" with Old Rings

Just slip these spring steel Nu Pep Piston Ring Expanders behind the old piston rings. They will force the rings against the walls of the cylinder and prevent leaking. Better than new rings.

Nu Pep Piston Ring Expanders

RESULTS	Guaranteed	
More Power Less Carbon Gas. Saved	to increase compression in any motor or money refunded. TRY A SET.	4 cyl. set, $2.00 6 cyl. set, $3.00 Mention car.

NUPEP MFG. CO., 1224 G Farwell Ave., Chicago, Ill.

THE AUTOMOBILE JOURNAL

Is the oldest Automobile magazine published in America devoted to owners of pleasure cars and dealers who serve them.

TRIPLEXD
TRIPLEXD
GASOLINE HOSE

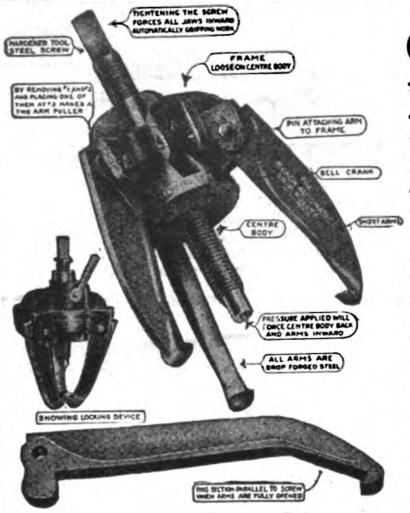
METAL HOSE AND TUBING CO., BROOKLYN, N.Y.

227 Tillary Street. Write for Our New Circular.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

GREB AUTOMATIC GRIP PULLER

BEACH PATENT


TIGHTENING THE SCREW FORCES ALL JAWS INWARD AUTOMATICALLY GRIPPING WORK
HARDENED TOOL STEEL SCREW
FRAME LOOSE ON CENTRE BODY
BY REMOVING #1 AND #2 AND PLACING ONE OF THEM AT #3 MAKES A TWO ARM PULLER
PIN ATTACHING ARM TO FRAME
BELL CRANK
SHORT ARMS
CENTRE BODY
PRESSURE APPLIED WILL FORCE CENTRE BODY BACK AND ARMS INWARD
ALL ARMS ARE DROP FORGED STEEL
SHOWING LOCKING DEVICE
THIS SECTION PARALLEL TO SCREW WHEN ARMS ARE FULLY OPENED

Gear Pulling Made Easy

The GREB AUTOMATIC GRIP AND GEAR PULLER gets a job done quick and without danger or damage. This means larger profits and quicker work.

Scientifically designed, well made, quick acting, strong, simple and trouble-proof. Adjusts itself instantly to work—locks in any desired position.

We also make the GREB RIM TOOL and GREB AUTO LOCK.

A Combination of 2 or 3 Arms.

TWO SETS OF ARMS

Senior Size—Capacity 1" to 10" and 1" to 18"
Junior Size— " 1" to 4" and 1" to 7"

10 DAYS TRIAL

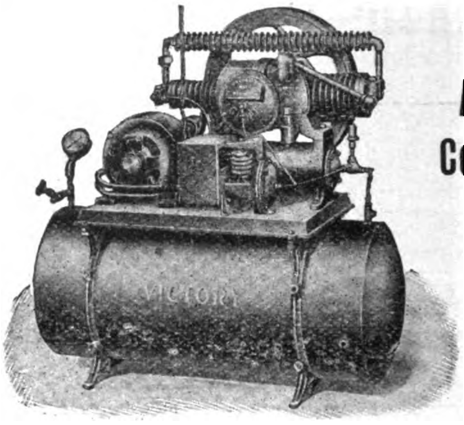
If your jobber does not have them, we will send you one. Try it ten days. If not satisfactory return it to us and we will refund your money.

GREB PRODUCTS BOSTON

THE GREB CO.
202 State Street, Boston, Mass.

GREB PRODUCTS BOSTON

VICTORY



Complete Automatic Compressor Unit

ACE OF ACES

GLOBE TYPE B—Original Two-Stage Garage Compressor. Saves power, time and money.

WONDERFUL new system of AUTOMATIC LUBRICATION insures Oil-Free Air, provides abundant and continuous lubrication and wastes NOT AN OUNCE of lubricant.

Automatic Pressure Unloader protects belts, fuses and motors.

15 Sizes and Styles of LAST WORD Equipments from which to select.

Desk C.

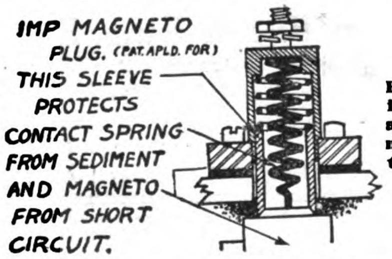
Globe Manufacturing Co., Battle Creek, Mich., U.S.A.

Stop Magneto Troubles On Your Ford

WITH AN

IMP MAGNETO PLUG

Thousands in use. Ask your dealer about the IMP.


IMP MAGNETO PLUG. (PAT. APLD. FOR)
THIS SLEEVE PROTECTS CONTACT SPRING FROM SEDIMENT AND MAGNETO FROM SHORT CIRCUIT.

Permanent insurance against magneto troubles.

Price $1.00 $1.50 in Canada

The above cut shows the vital point of the Ford ignition system absolutely protected against all sediment formed by the wear of transmission bands and connecting rod bearings. The IMP is guaranteed to prevent all magneto and most ignition troubles.

Short circuiting will eventually kill the finest magneto made. The IMP is the only sure protection against magneto troubles and expense. It lasts forever and can be attached in five minutes without trouble.

Sold on a money-back guarantee everywhere by good jobbers and dealers.

Manufactured by

THE IMPROVED MOTOR ACCESSORIES COMPANY
3405-11 Perkins Ave., CLEVELAND, OHIO

DIXON'S
GRAPHITE
No. 677
FIRST AWARD FOR

Pin Your Faith on Dixon's

The lubricants that have proved their superiority in actual use and scientific demonstration. Don't be content with a camouflage coating that squeezes out quickly and leaves bearing surfaces at friction's mercy. Rely on

DIXON'S GRAPHITE Automobile LUBRICANTS

they stay put—save wear, time and money.

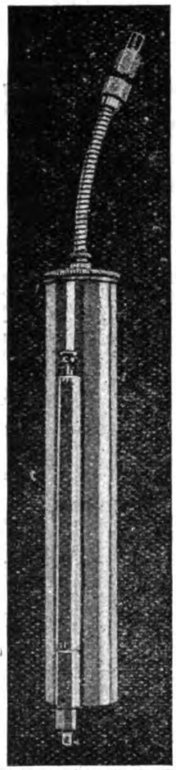
Write for Dixon's Dealer's Deal No. 49-G.

Made in Jersey City, N. J., by the

JOSEPH DIXON CRUCIBLE CO.

DXN ESTABLISHED 1827 DXN

ATLANTIC PNEUMATIC GREASE GUN



The Grease Gun is operated with power or foot pump, spare tire or compress air. It will force the old grease and dust out of joints and fill with new grease.

It is clean in use, saves 90% in time and labor. It never fails to carry the lubricant where needed. Any grade of grease can be used. Capacity 16 oz.

List Price With Filler, $6.00

JOBBERS AND DEALERS: This is the gun that you have been looking for. Prices and discounts at request.

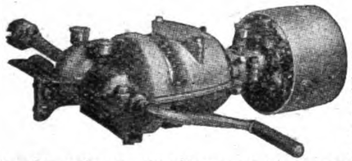
Atlantic Motor & Supply Co.

1045 TREMONT BLDG., BOSTON, MASS.

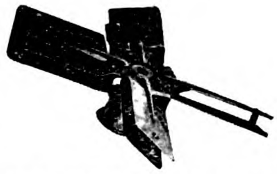
Works:
63 Gorham St., West Somerville, Mass.

Patent Applied For

Make Real Money Selling The Andrew Power Transmitter



It's a time, labor and money saver for every farmer who owns a Ford. Converts any Ford car into an 8 H. P. power plant for running feed grinder, corn sheller, concrete mixer, ensilage cutter, cream separator, washing machine, etc. Takes power off crankshaft. Governor controlled—no injury to car or tires. Easily attached or detached. Get the agency for your county and make a clean-up with with this rapid mover.



THE TWIN BLADE FAN

which is a part of the regular equipment shipped with each transmitter, is a live seller by itself. Prevents over-heating engine when Ford car or converted Ford truck is run at high speed with heavy loads. Saves its cost in lubricating oils on any Ford on 2500 miles driving.

Write for agency proposition and ten day trial offer.

ANDREW MOTOR MFG. CO.

**827 Muskego Ave.,
Milwaukee, Wis.**

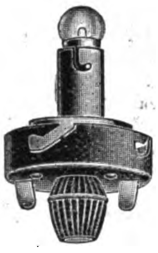
BASCo TRADE MARK

Electrical *Specialties*

UNILITE

A Tail Light Outfit for Ford Cars

UNILITE OUTFIT



Unilite Adapter

The Unilite Outfit is especially designed to provide an electric tail light for Ford Cars, operated from the magneto when running and from dry cells when the car is parked. It is the only reliable tail light outfit on the market for Ford cars not equipped with a storage battery. It is much cheaper to operate than a storage battery and its first cost is very much less. The unit feature makes it possible to install one or both electric side lamps in addition to tail lamp at any time desired.

Outfit can be installed by anyone in a few minutes with no tools, except a screw driver.

Complete outfit consists of one **Unilite Adapter,** with bulb, as shown in cut, one **Unilite Controller and Switch,** as shown, and all wire necessary for installing. Complete instructions are packed with each outfit.

PRICE COMPLETE, $4.00.

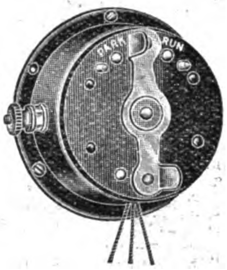
Extra Unilite Adapter with bulb and wire for attaching to switch terminal on Unilite Controller

$1.60 EACH.

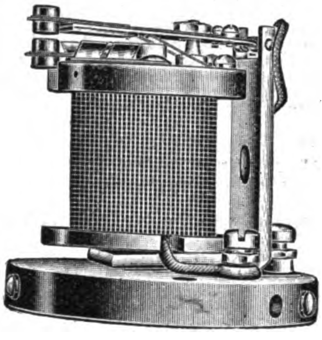
Separate Controller and Switch,

$2.40 EACH.

Write for our circular fully describing the Unilite.



Unilite Controller and Switch



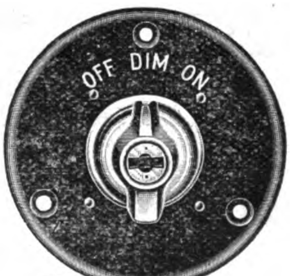
Reverse Current Cutout No. 2

Automatically connects and disconnects the battery and the generator.

For Automobiles, Battery Charging and Farm Lighting.

	Price Each
6 volt—15 ampere	**$4.25**
12 volt—15 ampere	**4.50**
32 volt—15 ampere	**4.75**
32 volt—30 ampere	**5.00**
6-24 volt—20 ampere	**6.00**

Combination Lighting and Battery Ignition Switch



The illustration represents a push key type lighting and battery ignition switch for series parallel or two bulb dimming.

A limited quantity on hand at

$1.35 EACH.

Dealers Write for Discounts and Further Information

Briggs and Stratton Co.

MILWAUKEE, WIS.

TRADE OUTLET

PURITAN SERVICE IS WORTH WHILE

70,000 SATISFIED CUSTOMERS HAVE FOUND IT SO

Write For Money Saving Monthly Bulletins. We Do Not Wreck Cars—Everything New

ELECTRICAL SPECIALS

6-V. Ward-Leonard Starting Motor, complete with Bendix Drive	$15.00
6-V. Ward-Leonard Lighting Generator	17.00
6-V. Trojan Motor Horn	5.00
Electric Head Lamps, per pair	$5.00 up
Battery Boxes, 11¾" long by 8¼" wide; 12" high	1.25
Starter Switches — many types—prices up from	1.25
Bosch DU-4 Magnetos—variable spark	30.00
Simms SU-4 Magnetos	25.00
Lighting Switch with Dimmer	1.00
6-V. Connecticut Lighting and Ignition Switch	7.50

STARTING AND LIGHTING BATTERIES

BRAND NEW—guaranteed—with universal terminals will fit most every car.

6-volt, 110 ampere	$25.00
12-volt, 60 ampere	36.00

Send for Our Circular (Electrical) H-400

SPECIALS FOR FORD CARS

Roller Bearings for front wheels—set of 4	$5.00
Crown Fenders—set of 4	18.00
Long sloping speedster fenders—set of 4	10.00
22-inch Tool Boxes with lock and key	1.70
Differential gears — Ring gear and pinion 2¾ and 3 to 1—set	15.00
Differential gears — Ring gear and pinion 4 to 1	12.50
One-man mohair touring tops—complete	35.00
One-man mohair roadster tops—complete	25.00
Top roofing outfits—touring	12.00
Top roofing outfits—roadster	9.00
Honeycomb Radiators — models up to 1916	25.00
Honeycomb Radiators — 1917-1918 models	26.50
Stewart Speedometers, complete	7.50
18" Steering wheels with corrugated rim	3.50
$1 Jointless Piston Rings, each	.75
Sando—special Ford Spark Plugs, each	.35
Master Vibrators	2.50

RIMS AND WHEELS

All makes for all cars—Let us quote you prices

RADIATORS FOR ALL CARS

Brand new Honeycomb Type for all cars. Write for price list

SPRINGS FOR ALL CARS

High grade standard Springs for all cars. Better prices; better service.

1½-TON TRUCK UNIT FOR FORDS

All that is required is a Ford Chassis (any model) a Puritan truck unit and "presto," you have a 1½-ton truck. No special tools required, only a wrench. Attachment can be made in two hours. Price......$245.00

Write for full description

STANDARD BODIES

1918 Abbott Cloverleaf, with Top and Shield—while they last	$125.00
5-pas. Studebaker bodies	50.00

Late model Packard 5-pas. body, brand new, complete with top and windshield; factory price, $900. First $300 takes it.

SPECIALS

18" Steering Wheels with corrugated Rim	$2.75
20-Gal. Pressure Feed Gas Tanks	10.00
Model "B" Presto tanks—fully charged	8.50
Model "E" Presto tanks—fully charged	7.50
Windshields — all sizes — priced up from	10.00
Tire Covers—All sizes except 30x3½	.75

AXLE SHAFTS

In stock for all cars. Get our prices first

NEW PARTS FOR ALL CARS

Gears, Axle Shafts, Bearings, Transmissions, Axle and Motor Parts, Piston Rings, Pistons, Universal Joints, Hubs and Hub Parts, Springs, etc.

Write us for quotations.

KELLOG MOTOR PUMPS

Kellog Motor Driven Tire Pumps for Hudson Super-Six	$10.50
Kellog Motor Tire Pumps for other cars	9.50
Spark Plug Pumps for Fords	1.50

MOTORS

Four and 6-cyl. rebuilt motors—They are not new, but we have rebuilt them ourselves and can guarantee them to be in first class condition. Many sizes and makes in stock, from 20 to 90 H. P.

If you are in need of a motor, write for our motor specification sheets.

STEERING GEARS—Brand New

Many makes and sizes in stock. Can fit most any car. Prices from $8.00 up.

TRANSMISSIONS

Up to the minute transmissions of all sizes in stock. Complete with levers. We have both the Bell Housing type, that is used with all the late makes of unit power plants, and the older type that set in center of car. Sometimes it is cheaper to buy new than to repair the old.

BEARINGS

All makes and sizes in stock. Bearings suitable for all cars. Immediate deliveries.

ELECTRICAL REPAIRS

Are you having trouble with your Starter, Lighting Generator, Magneto Coil, Switch, etc.?

LET THE PURITAN OVERHAUL IT

Better service. Better prices.

ELECTRIC LIGHT YOUR FORD

Complete lighting system. Includes generator complete, storage battery, electric side and tail lamps, switches, wiring, etc. Everything complete installation. Regular price $29. Our price, $17.50.

PURITAN MACHINE CO., 604 PURITAN BLDG. **Detroit, Mich.**

EASTERN BRANCH, 245 WEST 55TH STREET, NEW YORK, N. Y.

Send it to Detroit

MAGNETOS.

Bosch DU4 Variable spark	$30.00
Bosch DU-4 set spark	25.00
Bosch D4 and Dr4	25.00
Bosch D6 and Dr6	30.00
Splitdorf 4 cyl. Dixie, high tension	25.00
Splitdorf 4 cyl., Models A, T, X and D	10.00
National 4 cyl. low tension	8.00
Briggs 4 cyl. low tension	8.00
Remy 4 cyl., type R L	15.00
Simms SU4 high tension	22.00

GENERATORS.

Deaco 6 volt	$12.00
Auto Lite 6 volt	15.00

COILS.

Splitdorf T S type	$10.00
Splitdorf box type	6.00
Bosch type A	10.00
Remy box coils	6.00
Remy type LC and LE	8.00
Briggs box coils	6.00

DETROIT MAGNETO REPAIRS ARE BETTER.

WE REPAIR any make magneto, coil, lighting generator or starter and give 24 hours service. Member Detroit Automobile Trade Association.

Detroit Magneto Exchange

192 Grand River Ave. Detroit, Mich.

FIRE——————FIRE

AUTO AUCTION COMPANY

Slightly Damaged by Fire and Water.
You Will Save Money by Sending for Our Fire Sale Bargain Sheet.

4-cylinder Motors, new	$60.00
100 Pressed Steel Frames, new	3.00
100 I-Beam Front Axles with hubs and bearings, new	12.00
100 set 30x3½ Wheels with demountable rims, lugs, bolts and wrenches	13.00
900 Steering Gears, locking type, new	5.00
Rear Axles, bevel gear type, new	55.00
5-passenger Bodies, upholstered, painted, with one-man top, windshield, mud skirts, fenders, hood, carpet for the rear, linoleum on front boards	115.00
250 Sliding Gear Transmissions, new, with levers and foot pedals	35.00
200 Springs, each	2.00
Spring Clips, each	.04
150 Mufflers, each	.90
700 30x3½ Tires, built-over, each	9.00
All other sizes, each	12.00

We have 100 second hand motors from $20 up.
5-passenger Bodies from..............$25 up

We can furnish parts for all makes of cars, new and second hand.

Get Our Bargain Sheet.

AUTO AUCTION CO.
517 W. Jackson Blvd., Chicago, Ill.

Superior Parts and Brushes

FOR ALL

Ignition and Starting Lighting Systems

Used for Years by the Best Repair Shops Everywhere

"They Last Longer but Cost Less"

Write for Catalogue

Specialty Manufacturing Co.

637 Massachusetts Ave., Arlington, Mass.

AUTO MAILING LIST.

44,755	Auto Dealers, U. S	$3.00 per M.
8,939	Ford Dealers, U. S., $20. or	$4.00 per M.
5,519	Truck Dealers, U. S., $12, or	4.00 per M.
	(Showing make of truck handled.)	
150,000	Truck Owners, U. S	7.50 per M.
5,400	Truck Owners in Chicago, $15, or	3.50 per M.
46,943	Garages, U. S	3.00 per M.
55,967	Auto Supplies, Retail, U. S.	3.00 per M.
45,054	Repair Shops	3.00 per M.
404	Auto Mfgrs	3.00 per M.
73,674	Auto Dealers, Garages, Supplies and Repairs in one list, no duplicates	3.00 per M.
1,502	Auto Supply Jobbers	$5.00

Complete list auto owners and Ford owners, $2.50 per M. Further particulars

TRADE CIRCULAR ADDRESSING CO.
W. Adams St. (Franklin 1182) Chicago

Lozier Owners

Why Buy
Counterfit Repair Parts
We Have All

Original Parts

Made from Original Patterns.
Order from Headquarters.

LOZIER MOTOR CO.

Fort and 6th Sts., Detroit, Mich.

Service Stations.

E. A. Cornely, Inc., 1445 Bush St., San Francisco, Cal.

Lozier Motor Co. of New York, Inc., 47th St. and 11th Ave., New York City.

AUTO PARTS.

50% to 90% Off List.

24 Hour Service. Unlimited Stock.

Pope-Hartford, Columbia, Reo, Overland and 200 other makes.

Motors,	$20.00 up	E. Presto Tanks,	$4.00
Magnetos,	$3.50 up	B. Presto Tanks,	$4.75
Cylinders,	$3.00 up	Bearings,	50¢ up
Springs,	$1.00 up	Rims,	$1.00 up

1000 Other PARTS Bargains.

If you want any part not listed here.

Write Us—We Have It.

Conn. Auto Parts Co. Inc.

1070 Main St., Hartford, Conn.

EXPERT REPAIRING; every known Magneto and Ignition System, Starters, Motors, Generators. **Magneto Exchange and Repair Shop, 269 Halsey Street, Newark, N. J.**

TRADE OUTLET

District Sales Manager WANTED

For New England Territory

By an old established Truck Company.

To a man who is well acquainted in this section and can close with the right kind of Distributors and Dealers a very advantageous contract will be offered.

In answering state experience. All correspondence strictly confidential.

BOX XL,
Automobile Journal Pub. Co.
PAWTUCKET, RHODE ISLAND.

Write AUTO PARTS CO. For

REPAIR PARTS

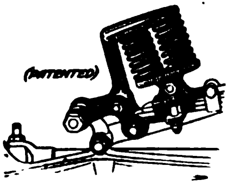
Our new bulletin of used parts and prices now ready.

With this bulletin in your shop you can supply repair parts for all makes and models of cars listed and increase your repair business.

It Is Free. Write for It Today.

AUTO PARTS CO.
4103 Olive Street, St. Louis, Mo.

Every Ford Owner Should Read "TRANSFORMING THE FORD." Tells how to secure smooth, positive brake action that no car can excel. A little "transforming" and your car will glide to a quiet, quick stop without the annoying, irritating clatter that you now experience. It will go into low or reverse without jumping or jerking and you can pick up speed with all the smoothness and ease of a high-priced car. All accomplished without additional expense and the result is a clear saving of 75 per cent. in one direction alone. "TRANSFORMING THE FORD" tells how it's done. Send for your copy this very minute. IT IS FREE. **Cormack & Co., 500 Fifth Ave., New York City.**



Front Absorber

"Champion" Shock Absorbers for Ford Cars.

A new spring suspension which absorbs jar and rebound. A wonderful E-Z ride suspension. (E-Z to attach.) Guaranteed by mfrs. Exclusive sales: big profit; agents, owners, dealers. Dept. H.

Champion Shock Absorber Sales Co., Inc., Indianapolis, Ind., Mfrs.

CAR LOADS OF REAL

SECONDS

AT UNHEARD OF PRICES. THOUSANDS OF LARGE AND SMALL DEALERS ON OUR MAILING LISTS.

WHY NOT YOU?

YOU WILL THEN BE INFORMED REGULARLY AS TO THE MONEY EARNING BARGAINS WE ARE OFFERING.

DON'T WAIT—WRITE OR WIRE TO-DAY FOR OUR PRICES.

BROADWAY TIRE JOBBERS
250 West 54th Street New York City

You Can't Tire Us Asking Questions.

POWER
OF THE
FORD

Doubled through leverage. The greatest satisfaction to CLIMB HILLS, PULL through MUD without using Ford Low. Victor "4 Speeds Forward" Auxiliary Transmission is mechanically simple, easily attached. Among 7 VITAL ADVANTAGES provides the missing "2nd" or "Intermediate" speed. Owners, Agents, why not learn the facts? *Write NOW* for complete line of "Power-4-Ford" devices to increase Power, Ability, Economy and Speed of Ford Cars and Trucks. Convincing Trial Plan. C. **VICTOR CO., 250 W. 54th St., New York.**

3000 MILES MORE

FROM THAT WORN OUT TIRE!!

The tread of any tire may be worn clear through, but if the inner fabric is good we will retread it and double the life of your tire.

A NEW NON-SKID TREAD.

Solidly Vulcanized by Factory Process. Costs about one-third the price of a new tire and we give a guarantee of 3000 miles service. An economical proposition at any time—especially worth while now, in view of the high cost and probable scarcity of tires.

CORP BROS. **40 Mathewson St., Providence, R. I.**
Phone Union 4179-R.

CYLINDER GRINDING

Pistons—Rings—Piston Pins

Prompt Service — Prices Right

Ford Cylinders Reground, new Pistons, Rings, Wristpins and Bronze Bushings fitted............**$14.50 Net**

We Use Genuine Ford Parts.

STERLING ENGINE CO.
329 S. CLINTON ST., CHICAGO, ILL.

Classified Advertising Brings Big Returns

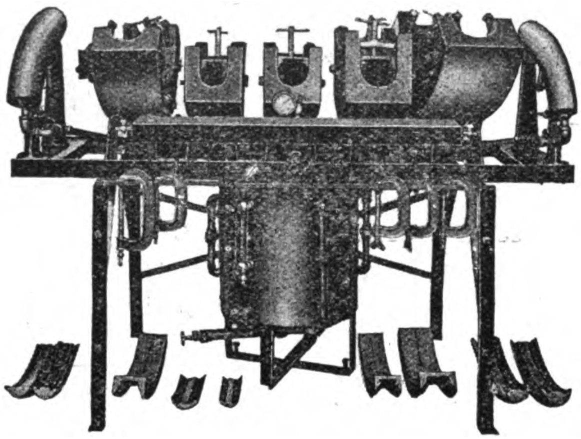
A Chance of 10 Lifetimes

OPEN A TIRE REPAIRING SHOP AT ONCE.

The greatest money-making business on earth requiring such small capital.

Vanderpool Valcanizer

5 Cavity Model does everything—can turn out $100 worth of work every day. Think—from 4 to 6 tires on every car need constant repairing. You open a shop, hang out a sign, pass around cards and in comes business like a flood. Write for FREE TIRE REPAIRING MANUAL—explains everything about the business.



In answering address Dept. R 8.

The Wm. Vanderpool Co., Springfield, O.

JEFFERSON AUTOMOBILE IGNITION COILS

STEADY PROFITS

in coil replacements—from a *small* investment.

ORDER JEFFERSON COILS

A small stock enables you to fit all makes of cars. Flexible caps, terminals, and brackets adapt these coils to all ignition systems.

You can count on the long life, dependability, and uniform high standard of Jefferson ignition coils—*we guarantee them fully.*

Prepare now for your *full* share of this steady, profitable business. *Today*—order Jeffersons—the only complete line of interchangable ignition coils.

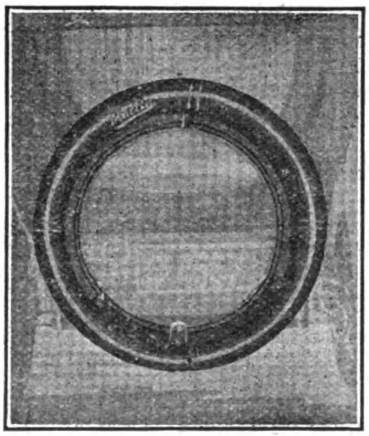
SEND FOR COIL LIST

showing list of all cars that are Coil-Equipped and the types of Jefferson Coils and Brackets to be used as Replacements.

JEFFERSON ELECTRIC MFG. CO.
429 So. Green St.
CHICAGO, ILL.

Martin Tire Covers

The lowest priced, highest quality, fastest selling tire covers made.



The Martin Style C Cover.

A "sale on sight" line with all dealers. Will fit any tire whether carried on or off extra rims.

Sold in sizes listed. Made of heavy selected enameled drill, long lasting and attractive in appearance.

Sizes	List Prices
28-30	$1.70
31-32	1.80
33-34	2.00
35-36	2.15
37-38	2.20
39-up	3.00

Jobbers and Dealers Write for Catalogues and Discounts. The Martin full line includes specialties that afford big returns to the trade.

MARTIN MANUFACTURING CO.
Lancaster Ohio

B
BUNTING BEARING BRONZE
B.B.B.CO.

Same quality as our finished bronze bushings and bearings used by manufacturers the country over.

Your repair stock is not complete without it.

All leading jobbers
Ask for catalog N

TheBuntingBrass & Bronze Co.

727 SPENCER STREET
TOLEDO, OHIO.

CORED BARS

STOCK SIZES

PIECE NO.	Outside Diameter	Inside Diameter	Length	Approx. Weight
A	1	½	12	2
B	1¼	½	12	3⅛
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8⅛
F	2¼	1¼	12	10
G	2½	1½	12	11⅛
H	2¾	1¾	12	12⅝
I	3	2	12	13⅝
J	3¼	2¼	12	15⅝
K	3½	2½	12	17
L	4	3	12	21
M	4¼	3¼	12	20

BURKE AUTOMOBILE PRODUCTS

THE BURKE Ox-iliator

Ox-Iliator

supplies the gasoline motor with additional oxygen (moisture) needed for complete combustion; consumes carbon; saves fuel; increases motor power. Inexpensive, easily installed.

Oxy-Genii capsules

double efficiency of any air moistener; surcharge water through which air passes with free oxygen. 30 capsules—3 months supply—75 cents. Write for booklets.

Oxy-Genii

AUTOMOBILE DEVICES COMPANY
PHILADELPHIA, U. S. A.

(When Writing to Advertisers, Please Mention the Accessory and Garage Journal.)

REG. U.S. PATENT OFFICE
IRONCLAD
KHAKI TWILLS
GUARANTEED FAST
WEARS LIKE LEATHER

UNCLE SAM'S FIGHTING BOYS WEAR

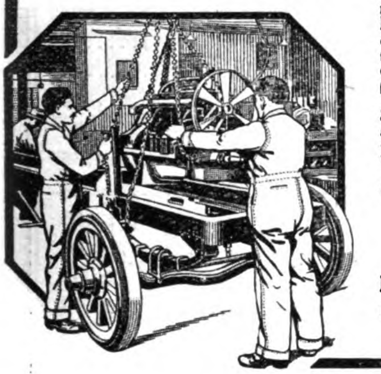
IRONCLAD KHAKI

(Twill Cloth)

You men and women on the "firing lines" of industry should wear garments of this patriotic economy cloth, too. It's fast color and *wears like leather.*

Coveralls, Overalls,

Shirts and Pants



made of the genuine IRONCLAD KHAKI (the kind Uncle Sam uses) carry the yellow "Army label" like the above. LOOK for it and the Guarantee Bond in the garments before you buy.

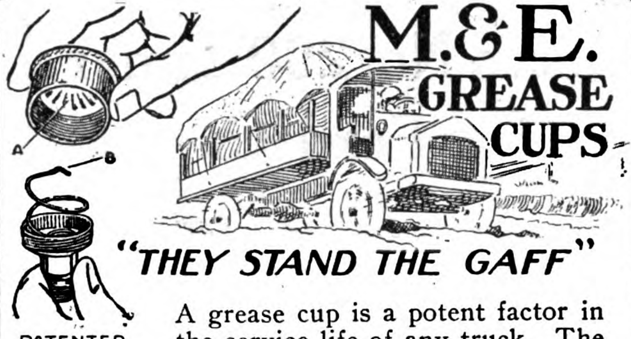
See for yourself what Ironclad Khaki and Miss Ironclad Khaki, the special woman's overall cloth, look like. Write today for free samples.¶

Garments on Sale by Dealers —Everywhere.

We are makers of the cloth only

FRANKLIN MANUFACTURING CO.

134 Market Place Baltimore, Md.



M.&E. GREASE CUPS

"THEY STAND THE GAFF"

A grease cup is a potent factor in the service life of any truck. The tops of most grease cups rattle off, thereby causing undue wear.

The tops of the "M & E" Grease Cups cannot work loose and will not rattle off. This affords positive protection. All Packard and many other leading makes of trucks are so equipped.

At "A" in the illustration is shown the notches in the top. "B" the end of the pawl, slips from notch to notch and always keeps the top locked.

Made of Steel and Brass.

Sample and Prices on Request.

Kindly mark your inquiry for Dept. 2.

MERCHANT & EVANS Co

NEW YORK PHILADELPHIA WHEELING
BALTIMORE CHICAGO
ATLANTA ST. LOUIS
CLEVELAND KANSAS CITY

Let Us Help You Build A Business Like This

IF you are ambitious and anxious to get ahead, we have an unusual business opportunity for you. Over 1,000 motorists are now handling "Racine-Quality Tires and Tubes"—they are rapidly getting a stranglehold on the business in their community, they are forging to the front with large sales and making big profits.

"Racine-Quality Tires" are fast becoming famous—but even more important to you is the fact that we give co-operation and sales assistance to our hundreds of "District Agents" which practically guarantees their success.

We Teach You How to Start
AND
We Teach You How to Stick

You don't have to have any capital—you can start in a small way and grow big—we help you towards success. Certainly you can do what 1,000 other men are now doing. This is the biggest opportunity that was ever offered you to get a quick start in the Big Tire and Tube Business.

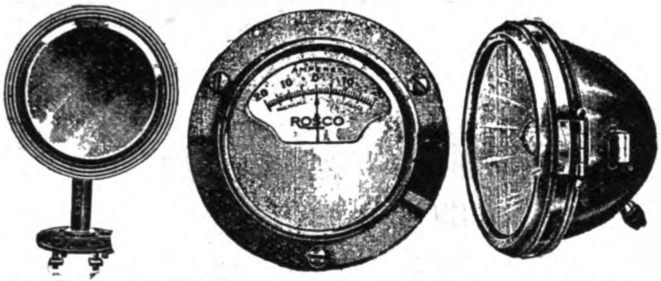
RACINE Quality TIRES
TIRES
TUBES

Territories Are Being Snapped Up

Be the first to represent us in your territory and with exclusive features and low price of our tires and tubes you will be able to control the TIRE BUSINESS in your territory.

Write to-day for our Liberal Proposition and Wholesale Prices.

Racine Tire & Rubber Co.
1432 Michigan Avenue
CHICAGO ILLINOIS
Address all inquiries for Desk 'M'



Our Line is a Money-Maker for you—Stock Now—Immediate shipments.

Write for
CATALOG
illustrating our Complete Line with Prices

It Will Pay You

SPARK PLUG WIRES

A. W. ROSEN & CO.
MANUFACTURERS
610-614 Broadway **New York**

Mosco No. 200 Timer for Ford Car

The case is made of extra heavy pressed steel, finished in aluminum. Gray bone fibre is used for raceway, with steel inserts dovetailed in and all lathe finished to a polished surface. The threaded terminals are insulated by fibre washers all the way through to contact points, thus removing cause of short circuiting common to this style of Timer.

Patented Oct. 31, 1916.

PRICE, Complete with Brush, $1.50 EACH

Motor Specialties Co.

Manufacturers

WALTHAM MASS.

THE MOST POPULAR TREAD ON THE MARKET

The favorite non-skid tread of America. Applied to repaired tires it increases their appearance 50%—and their value correspondingly.

The manufacturers—one of the largest rubber companies in the United States—will consider contracting their accumulation of blemished stock of these bands over a period of six months or a year, or fill minimum individual orders of 500 bands. The blemishes are slight. All the bands are good usable stock.
Full details and prices on request.

Address

Box No. 60.
Accessory & Garage Journal

THE ACCESSORY AND GARAGE JOURNAL

INDEX TO ADVERTISERS

Page
A B C Starter Co 70
Adamson Mfg. Co 66
Advance Auto Accessories Corp 20
Air-Tight Steel Tank Co 80
Akron Rubber Mold and Machine Co 67
American Automatic Devices Co 68
American Bureau of Engineering 71
American Mfg. and Supply Co 70
Andrew Motor Mfg. Co 73
Anti-Borax Compound Co 68
Atlas Tire Co 67
Atlantic Motor and Supply Co 73
Auglaize Motor Car Co 71
Auto Auction Co 74
Auto Parts Co 75
Automobile Devices Co 76
Barrett Motor Starter Co., Inc 64
Bay State Pump Co 65
Bilodeau Ball Bearing Works 80
Black & Decker Mfg. Co .... Cover
Box 60 78
Box X L 75
Brightman Auto Exchange 64
Briggs & Stratton Co 73
Broadway Tire Jobbers 75
Brunner Mfg. Co 11
Bunting Brass and Bronze Co 76
Champion Shock Absorber Sales Co 75
Chicago Eye-Shield Co 66
Connecticut Auto Parts Co., Inc 74
Cormack & Co 75
Corps Brothers 75
Culver Stearns Mfg. Co 63
Curtis Pneumatic Machine Co 66
Detroit Accessories Corp 15
Detroit Magneto Exchange 74
Dixon Crucible Co., Jos 72
Du Pont Fabrikoid Co., E. I 14
Dyer Co., G. H 1
Factory Sales Co 64
Faw, Inc., J. H 63
Fisk Rubber Co 59
Fitzgerald Mfg. Co .... Cover
Franklin Mfg. Co 77
Globe Mfg. Co 72
Gray & Davis, Inc .... Cover
Greb Co., The 72
Hartog, S. D 16
Heald Machine Co 5
Heintz & Co., Jas. C 64
Hobart Brothers 4
Hubbard, M. K., Spring Co 70
Improved Motor Accessories Co 72
International Metal Polish Co 13
Jefferson Electric Mfg. Co 76
Jenkins Vulcan Spring Co 7

INDEX TO ADVERTISERS

(CONTINUED.)

Page
Lawrence, Inc., Geo....68
Lozier Motor Co....74
Lucas, J. L. & Son....64

Magneto Exchange and Repair Shop....74
Martin Mfg. Co....76
Mechanical Utilities Corp....69
Merchant & Evans Co....77
Metal Hose and Tubing Co....71
Miller, Chas. E....80
Mitchell & Smith, Inc....64
Mormiles Co....61
Motor Specialties Co....78
Mueller & Co., R. S....66

New Departure Mfg. Co....66
New England Mills Co....62
New Era Spring and Specialty Co.... 8
New York Coil Co....19
Nupep Mfg. Co....71

Ohio Carbon Co....68
Oldfield Tire Co....2-3

Piston Ring Co....66
Puritan Machine Co....74

Racine Tire and Rubber Co....77
Randall-Faichney Co., Inc....17
Raybestos Co.... 9
Rich Mfg. Co....64
Rosen, A. W. & Co....77
Ross-Gould List and Letter Co....80

Scaife, Wm. B. & Sons Co....66
Schrader's Son, Inc., A....12
Service Station Equipment Co., Inc....70
Shaler Co., C. A....66
Simmons Mfg. Co....69
Specialty Mfg. Co....74
Spring Leaf Lubricator Co....80
Sterling Engine Co....75
Suffolk Mfg. Co., Inc....80
Swedish Crucible Steel Co....65

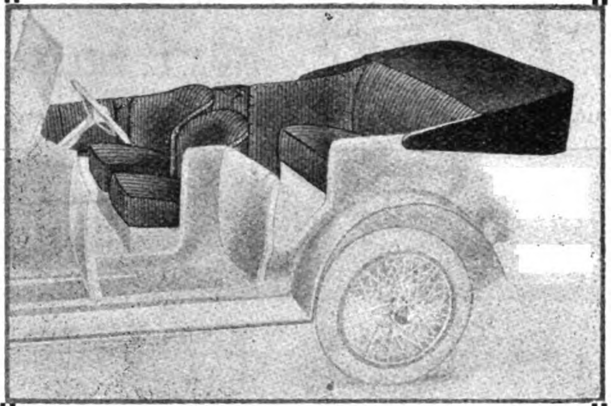
Taft-Pierce Co....80
Thomas, John H....64
Tire Construction Co....18
Trade Circular Add. Co....74

United Engine and Mfg. Co....80
United Motors Service, Inc....10
Universal Battery Co....19

Vanderpool Co., Wm....76
Victor Co....75
Victor Mfg. and Gasket Co....62
Victory Liberty Loan.... 6

Walden-Worcester, Inc....Cover
Webber Mfg. Co....70
Weston Electrical Instrument Co....71
Williams, A. F., Mgr....64
Wilson, K. R....68
Wisconsin Auto Top Co....79
Workrite Mfg. Co....68

Badger



SEAT COVERS
SLIP ROOFS
TIRE COVERS
BACK CURTAINS

No motorist can afford to buy Seat Covers, Slip Roofs, Tire Covers or Back Curtains before he sees the BADGER line.

No dealer should think of stocking any other before he sees the splendid advantages BADGER has to offer.

The BADGER line comprises a far more comprehensive selection of fabrics. It possesses many advanced improvements. It is representative of the highest degree of quality and wear value. It affords many superiorities—**needed** betterments that guarantee a splendid sales increase for any dealer.

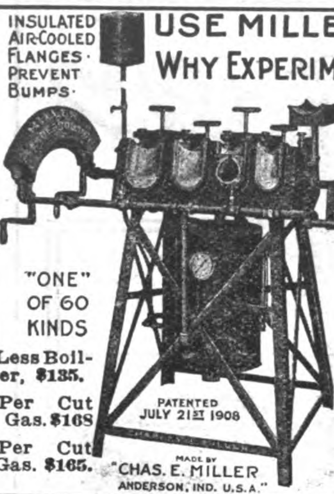
Prices as low and in many cases lower than asked for inferior makes.

Our catalog illustrates and describes the season's most attractive offerings. Comparison of quality and prices is certain to win the motorist's preference for BADGER every time.

DEALERS—this catalog is yours for the asking. You should have it. You need it—and **need it now**—if you want the line of least resistance.

Most meritorious—and, because it is—the greatest money-maker for the dealer. Write today.

Wisconsin Auto Top Co.
1 MAIN ST., RACINE, WIS.


INSULATED AIR-COOLED FLANGES PREVENT BUMPS
PATENTED JULY 21ST 1908
MADE BY "CHAS. E. MILLER ANDERSON, IND. U.S.A."

USE MILLER'S WHY EXPERIMENT

"ONE" OF 60 KINDS

Less Boiler, $135.

Per Cut Gas. $168

Per Cut Gas. $165.

Extra Ply Tires, Tubes, Vulcanizers

60 kinds.

6 kinds Wrapping Machines—Tire Building Stands—Air Pumps—Repair Stocks—Reliners—Steam Boilers.

Complete Tire Shop Outfits

Rubber Workers Tools and all Supplies—Boot and Shoe Vulcanizer—FREE 84-page Catalog—Four Cavity Ribbed Retreader. Write today. Don't delay.

CHAS. E. MILLER
1402 Meridian St.,
Anderson, Ind. U. S. A.

AIR TIGHT STEEL TANK CO.
PITTSBURGH, PA.
COPPER BRAZED AIR TANK

TANKS

The tightest, safest, strongest tank it is possible to construct by any known method. Process originated by us over twenty-five years ago.

We also make a special portable emergency tank for filling tires. Throw it in your emergency car and take it with you.

Gasoline and Oil Storage Tanks and Pumps

AIR-TIGHT STEEL TANK CO.
Main Office and Works
PITTSBURGH, PA.

Guaranteed Bearings

We Exchange Rebuilt Bearings for old or worn ones **BILODEAU** BALL BEARINGS WORKS

In Order to Obtain

EFFICIENCY and ECONOMY

in Bearings, send your worn bearings to us for repairs. We will rebuild them, make them as good and better than new at a fraction of the cost of new bearings.

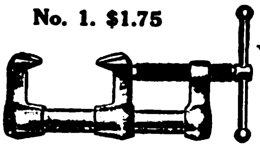
SATISFACTION GUARANTEED.

Garage and Repair Men cannot afford to miss this splendid service. No delay. We carry a big stock of Rebuilt Bearings to exchange for worn ones. Catalog sent and discounts quoted on application.

BILODEAU BALL BEARING WORKS
66 Stanhope Street, BOSTON, MASS.

Knowlson Spring Spreaders

No. 1. $1.75



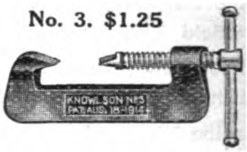
Nickel-plated and polished.

Both Guaranteed.
Either or Both Delivered.
Your Money Back if You Want It.

They Fit Any Spring. Easy to Operate. Both Drop Forged.

DON'T RUIN YOUR SPRINGS BY NEGLECTING THEM!

No. 3. $1.25



Gun metal yoke, screw and handle nickel.

100% EASIER RIDING.

SQUEAKING STOPPED.

Spring Breakages Eliminated.

Use a Heavy Grease (not oil) for real results.

At your Dealers, or Sent Direct.
SPRING LEAF LUBRICATOR CO., Dept. 4, Ann Arbor, Mich.

The MANLEY GARAGE AND SHOP EQUIPMENT

Every garageman and repairman should get our catalog. You'll find in it just the time and labor savers you need, and their prices will astonish you by their moderateness.

Send for your copy of this catalog today

THE UNITED ENGINE & MFG. CO.
Hanover, Pa.

Your Prospective Customers

are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 9000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable reference book free.* Write for it.

50¢ Saves Dollars on Your Purchases

Get several quotations on what you buy. It will save many dollars. For 50c (coin or stamps) we will send a few names of manufacturers, jobbers, dealers, or individuals who sell what you want to buy.

Ross-Gould Mailing Lists St. Louis

For sale by accessory and hardware dealers or by MAIL POST-PAID 50c EACH

RAIN-SNO CLEAR VIEW WINDSHIELD CLOTH

PREVENTS ACCIDENTS

Just RUB IT OVER THE GLASS and RAIN or SNOW cannot collect to obstruct the vision.

INSIST UPON THE "RED CLOTH"

Which is guaranteed to give continuous use for one year or money refunded. Made only by

SUFFOLK MANUFACTURING CO., INC., DEPT. D.
60 LONG WHARF BOSTON, MASS.

50% to 90% Saving

on Motor Bearing Fitting is Effected by means of

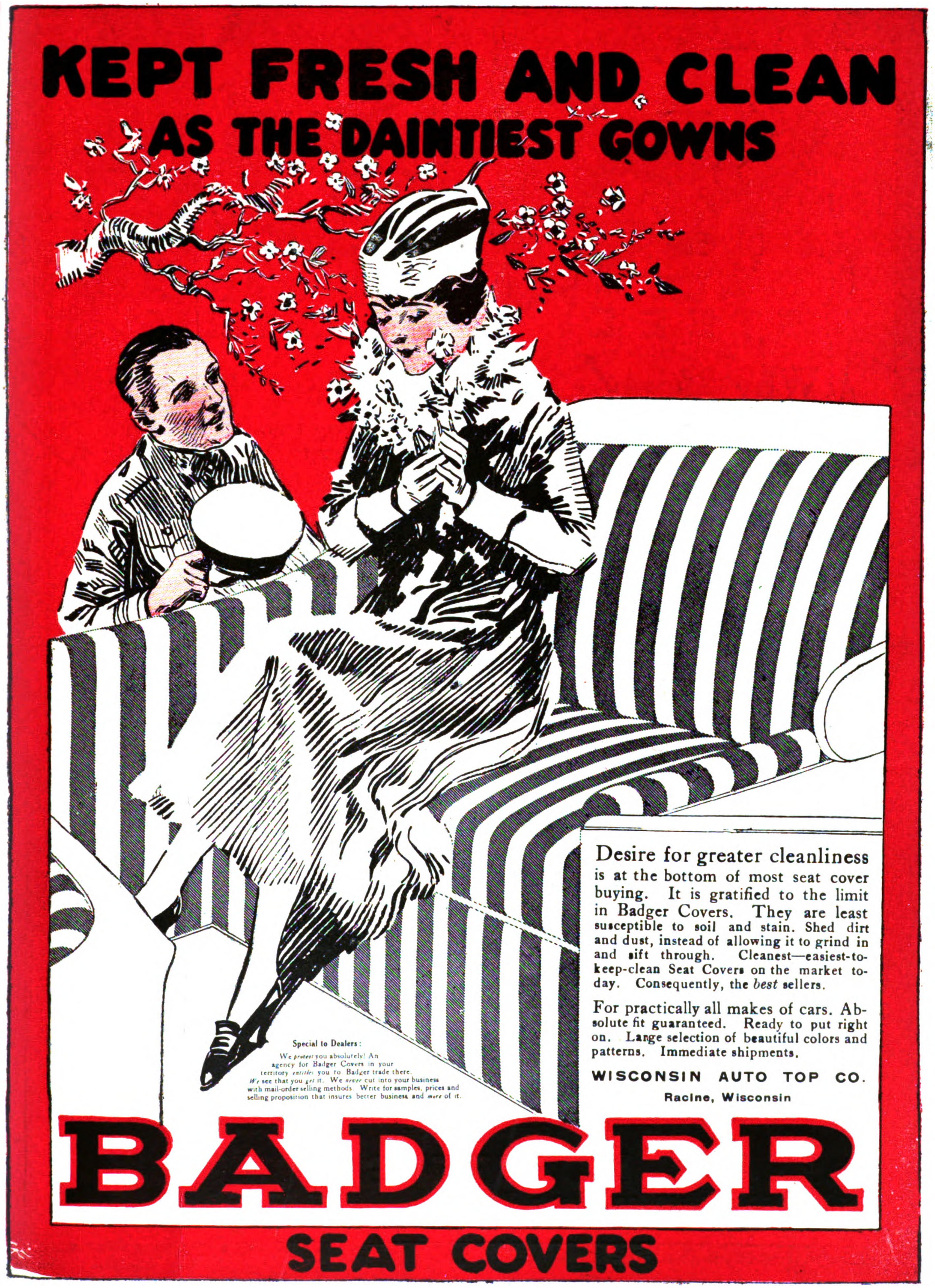
MARTELL ALIGNING REAMER

For new work or repair work on all makes of motors it insures:

Perfect alignment of all bearings. Correct position of Crankshaft with reference to centers of camshaft, driving gear and pinion. Correct size of bore of bearings, allowing for oil clearance. Write for our Repair Reamer Booklet.

TAFT-PEIRCE
Woonsocket, R.I., U.S.A.

New York, Woolworth Bldg., Detroit, Majestic Bldg. (2000)



KEPT FRESH AND CLEAN AS THE DAINTIEST GOWNS

Desire for greater cleanliness is at the bottom of most seat cover buying. It is gratified to the limit in Badger Covers. They are least susceptible to soil and stain. Shed dirt and dust, instead of allowing it to grind in and sift through. Cleanest—easiest-to-keep-clean Seat Covers on the market today. Consequently, the *best* sellers.

For practically all makes of cars. Absolute fit guaranteed. Ready to put right on. Large selection of beautiful colors and patterns. Immediate shipments.

WISCONSIN AUTO TOP CO.
Racine, Wisconsin

Special to Dealers:

We *protect* you absolutely! An agency for Badger Covers in your territory *entitles* you to Badger trade there. *We* see that you *get* it. We *never* cut into your business with mail-order selling methods. Write for samples, prices and selling proposition that insures better business and *more* of it.

BADGER

SEAT COVERS

MOSSBERG

ALL STEEL **WRENCHES AND TOOLS**

Why Your Customers Want Them

Behind Mossberg All Steel Wrenches and Tools stands Mossberg national advertising—an assurance to every dealer that a new and unusual demand is continually being created for this dependable line.

Persistent advertising to all classes of wrench and tool users makes Mossberg Tools constantly called for. In so much as the Mossberg line includes so many specialties in adjustable, socket, single and double-end wrenches, made particularly for "the places hard to get at," there is a model for every need or requirement.

M TRADE MARK

MOSSBERG
DEPENDABLE TOOLS

M TRADE MARK

MOSSBERG
MOTOR WRENCH
K9

Series "K" Adjustable Wrench

are to be consistently called to the attention of your customers in such publications as Saturday Evening Post, Literary Digest, Hardware Age, Hardware & Metal, Motor World, Motor Boat, Implement and Tractor, Commercial Car Journal, Motorcycling and Bicycling, Motorcycle and Bicycle Illustrated, Automobile Trade Directory and American Exporter, reaching every class of possible customers for Mossberg Tools.

You will get the full benefit from our national advertising by letting your customers know that you are the Mossberg dealer for whom they are looking, and incidentally get quick turnovers—a number of them. Use our free dealer helps to do this.

We have an interesting story to tell you on the Mossberg proposition, and how it will bring an increasing number of satisfied customers to your store.

"Our simple sales policy is to deserve your business."

Send for 201-A descriptive catalogue.

No. 14 Socket Wrench Set

FRANK MOSSBERG COMPANY

Wrenchsmiths for Twenty Years **ATTLEBORO, MASS.**

1918

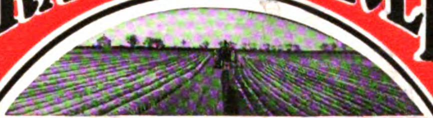
TICE TO READERS.—When you finish reading this magazine place a one cent stamp on this notice, hand same to any postal employee, d it will be placed in the hands of our soldiers and sailors at the front. No wrapping—no address. A. S. Burleson, Postmaster-General.

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. NO. 2. PAWTUCKET, R. I., JUNE, 1918. $2.00 THE YEAR.

INITIAL EDITION

TRACTOR WORLD



All issues of the

TRACTOR WORLD

will reach all tractor manufacturers, all tractor and farm implement and machinery dealers and a very large part of tractor owners.

Subscription Price, $2.00 a Year

Published by

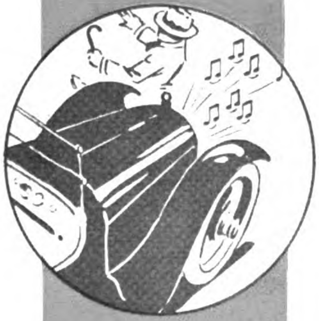
AUTOMOBILE JOURNAL PUBLISHING CO.

TIMES BUILDING, PAWTUCKET, R. I.

Publisher of *Motor Truck* *Automobile Journal* *Accessory & Garage Journal*

STILES
LIBERTY
SIREN

A low, polite, yet far-reaching warning.



A quick, shrill emergency blast.

A friendly, inoffensive hailing signal.

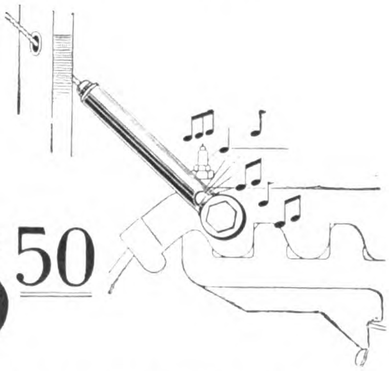
Over 5,000 sold in St. Louis in ten days

This record of sales speaks for itself. And, the sales possibilities are just as big everywhere.

Motor car owners and operators are looking for a trouble-proof signal that will always work. That's why the Stiles Liberty Siren found a ready market.

Easily and quickly installed. No battery connection to cause trouble. Attaches to exhaust manifold, operates by a cord from the steering wheel or dash. And, it always works—get that, *always*. Causes no back pressure on muffler. Fits all cars. Needs no attention—causes no trouble.

Stiles Liberty Siren comes in a carton complete with simple directions. The signal itself is nickel plated.



$3.50

Positively Guaranteed

Jobbers and Dealers: Fill out and return coupon immediately and we will forward literature and attractive proposition.

In Canada $5 00

Liberty Accessories Corporation
1130-34 Chestnut St. St. Louis, U. S. A.

A continuous, urgent, road-clearing siren-signal.

A business-like truck signal.

Jobbers and Dealers

Liberty Accessories Corp.
1130-34 Chestnut Street
St. Louis, U. S. A.

Gentlemen:
Kindly mail me price list and particulars.

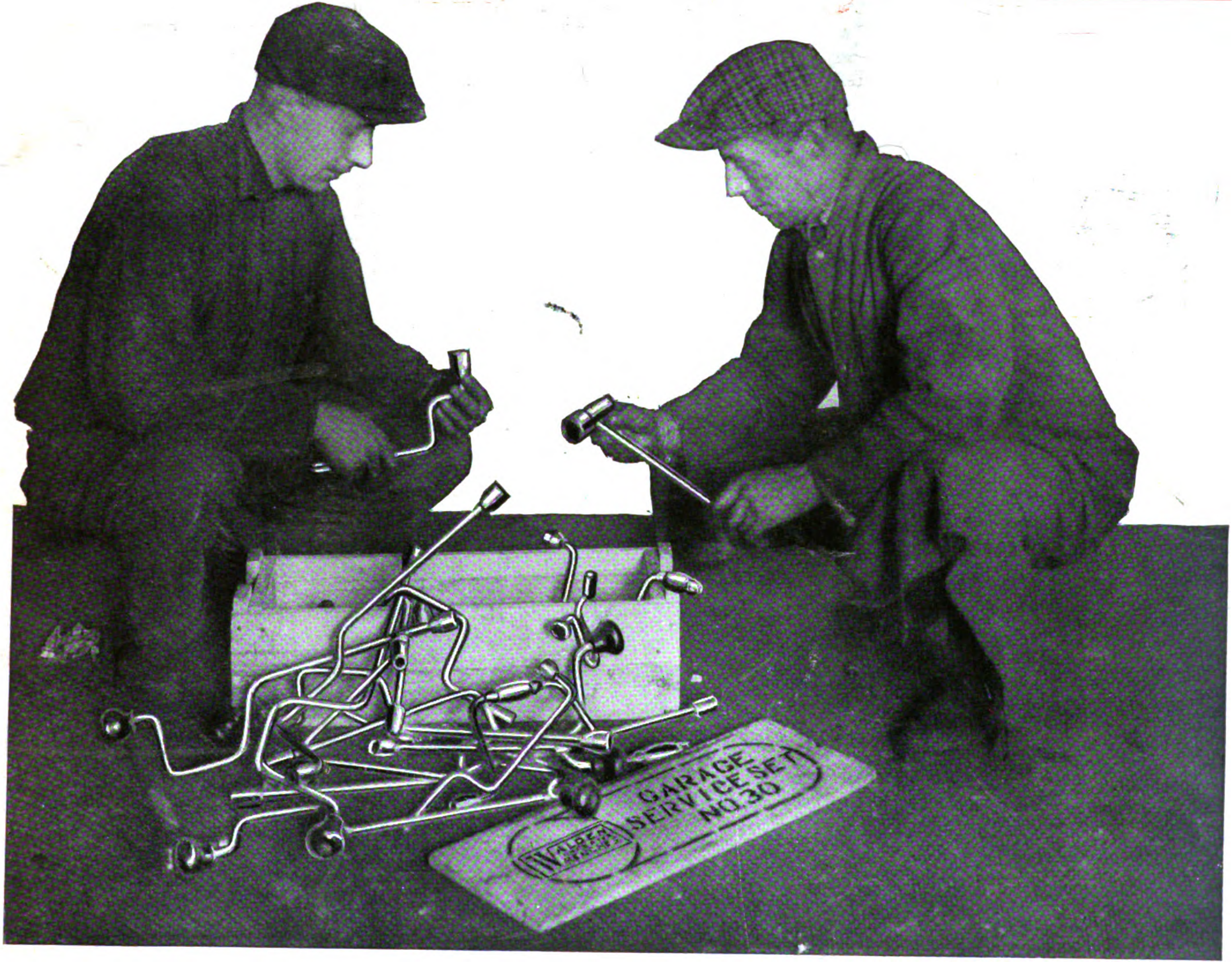
Name ____________________

Address ____________________

(*If dealer, give Jobber's name and address.*) AGJ

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. NO. 3. PAWTUCKET, R. I., JULY, 1918. $2.00 THE YEAR.



WALDEN-WORCESTER, INC. WORCESTER, MASS., U.S.A.

WALDEN WORCESTER WRENCHES

GARAGE MEN EVERYWHERE

ARE BUYING

No. 30 GARAGE SERVICE SETS

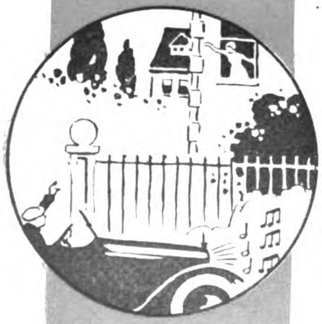
so that they may be equipped with the most efficient tools obtainable for making repairs and adjustments on all cars in the easiest and quickest possible manner. List price **$20.** (30 tools).

Send to-day for Complete Wrench Catalogue No. 700 Showing Individual Sets for Ford—Dodge—Buick—Overland Cars.

STILES LIBERTY SIREN

A low, polite, yet far-reaching warning.

A quick, shrill emergency blast.



A friendly, inoffensive hailing signal.

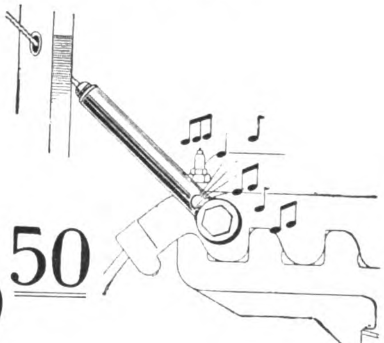
Over 5,000 sold in St. Louis in ten days

This record of sales speaks for itself. And, the sales possibilities are just as big everywhere.

Motor car owners and operators are looking for a trouble-proof signal that will always work. That's why the Stiles Liberty Siren found a ready market.

Easily and quickly installed. No battery connection to cause trouble. Attaches to exhaust manifold, operates by a cord from the steering wheel or dash. And, it always works—get that, *always.* Causes no back pressure on muffler. Fits all cars. Needs no attention—causes no trouble.

Stiles Liberty Siren comes in a carton complete with simple directions. The signal itself is nickel plated.



$3.50

Positively Guaranteed

Jobbers and Dealers: Fill out and return coupon immediately and we will forward literature and attractive proposition.

In Canada $5 00

Liberty Accessories Corporation
1130-34 Chestnut St. St. Louis, U. S. A.

A continuous, urgent, road-clearing siren-signal.

A business-like truck signal.

Jobbers and Dealers

Liberty Accessories Corp.
1130-34 Chestnut Street
St. Louis, U. S. A.

Gentlemen:
Kindly mail me price list and particulars.

Name ____________________

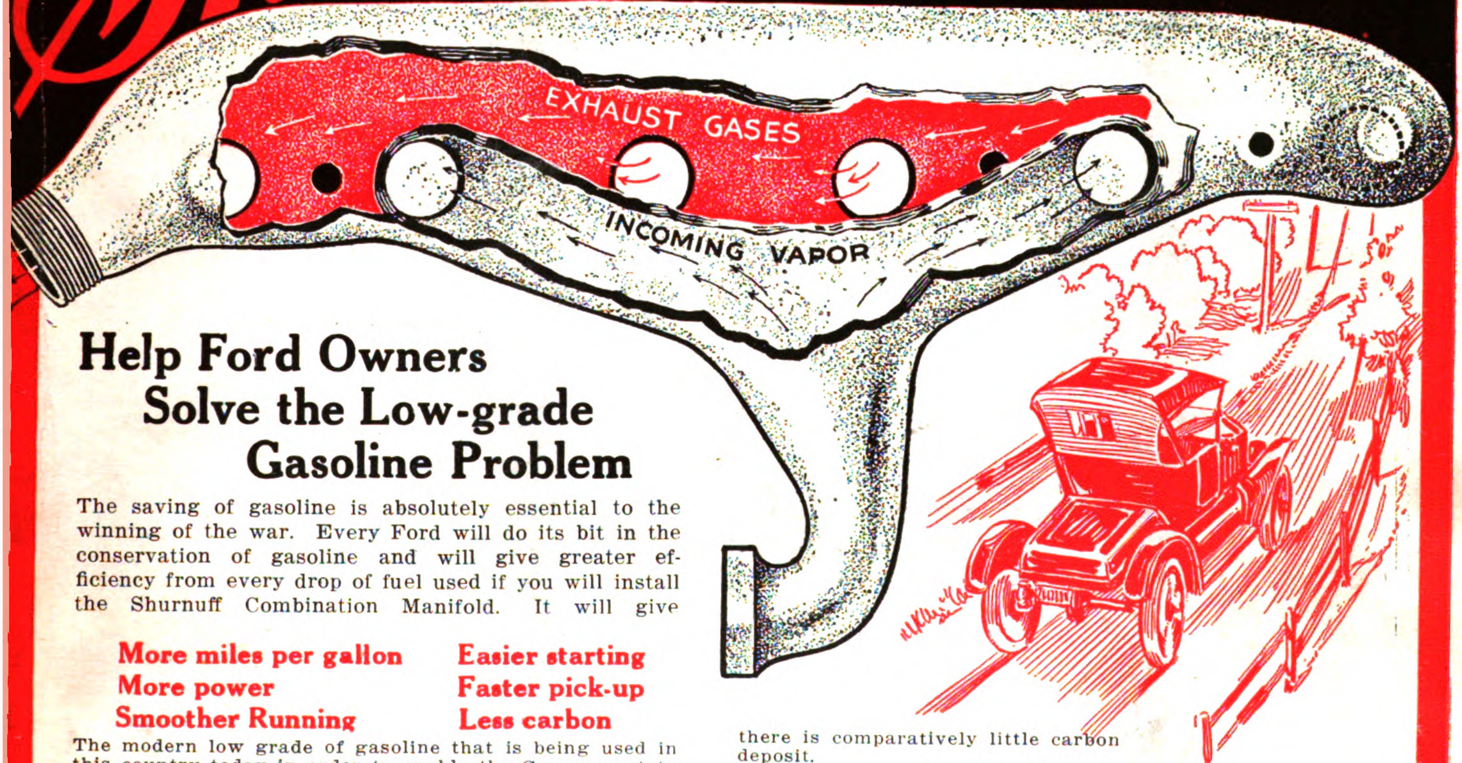
Address ____________________

(If dealer, give Jobber's name and address.) AGJ

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. NO. 5. PAWTUCKET, R. I., SEPTEMBER, 1918. $2.00 THE YEAR.

Shurnuff TRADE MARK COMBINATION MANIFOLD



Help Ford Owners Solve the Low-grade Gasoline Problem

The saving of gasoline is absolutely essential to the winning of the war. Every Ford will do its bit in the conservation of gasoline and will give greater efficiency from every drop of fuel used if you will install the Shurnuff Combination Manifold. It will give

More miles per gallon
More power
Smoother Running
Easier starting
Faster pick-up
Less carbon

The modern low grade of gasoline that is being used in this country today in order to enable the Government to ship the higher grades abroad for war purposes evaporates very slowly. The result is that it does not form a perfect mixture at ordinary temperatures, but enters the cylinders in the form of a fog instead of a finely divided vapor. This means incomplete combustion, which results in loss of power and much carbon. This low-grade gasoline must be heated in order to vaporize perfectly.

The Shurnuff Combination Manifold combines the intake and exhaust in a one-piece casting in such a way that the gasoline passes within the heated wall of the exhaust manifold before it enters the cylinder. This not only insures perfect vaporization, but permits a weaker gasoline mixture to be used.

And as the low grade gasoline contains more power units per gallon when properly vaporized than higher grades, the reason for increased power is apparent. Combustion being complete, the motor runs more smoothly and there is comparatively little carbon deposit.

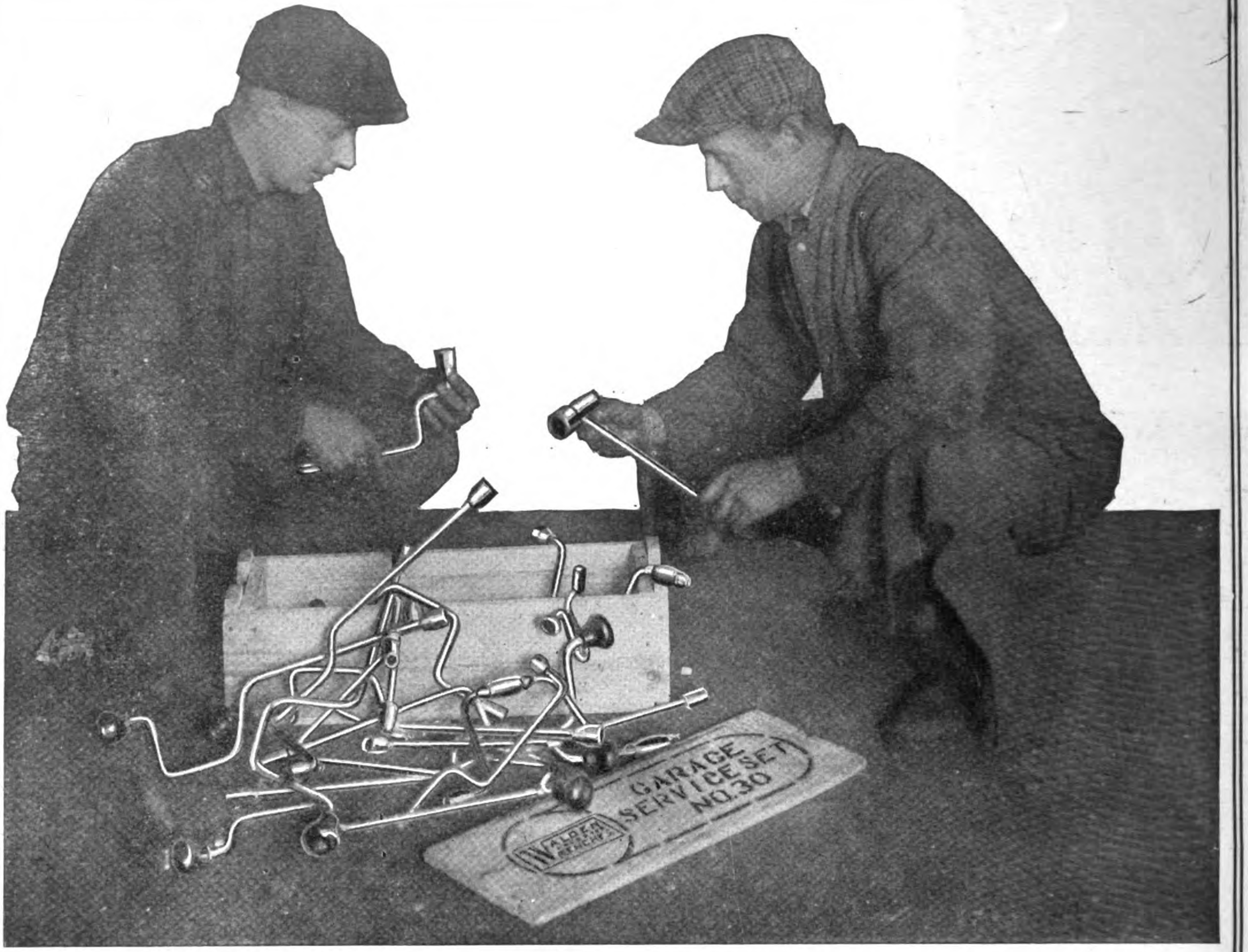
Once the motor has been started, the manifold retains the heat so that perfect vaporization of low-grade gasoline, even in the coldest weather, is made possible. Ease in starting and faster pick-up are the natural results.

Sells because it meets a demand

The low-grade gasoline problem is a REAL one with any car owner. This manifold solves it for Ford owners. You'll find sales easy-going—a proposition that any Ford owner will take to at once. Retail prices complete $9.00, West of Rockies, $10.00; in Canada, $12.50. Stock the Shurnuff Manifold—ask your jobber or wire

Shurnuff Mfg. Co., Dept. E **St. Louis, Mo.**
Sales Dept., The Zinke Company, Chicago, Ill.

INDEX TO ADVERTISERS PAGES 62-63



GARAGE MEN EVERYWHERE

ARE BUYING

No. 30 GARAGE SERVICE SETS

so that they may be equipped with the most efficient tools obtainable for making repairs and adjustments on all cars in the easiest and quickest possible manner. List price **$20.** (30 tools).

Send to-day for Complete Wrench Catalogue No. 700 Showing Individual Sets for Ford—Dodge—Buick—Overland Cars.

WALDEN-WORCESTER INC.
WALDEN WORCESTER WRENCHES
WORCESTER, MASS., U.S.A.

Entered as second class matter, December 30, 1911, at the Postoffice at Pawtucket, R. I., under Act of Congress of March 3, 1879.

The ACCESSORY and GARAGE JOURNAL

VOL. VIII. NO. 10. PAWTUCKET, R. I., FEBRUARY, 1919. $2.00 THE YEAR.

GRAY & DAVIS

Starting-Lighting System

SERVICE

IN ALL PRINCIPAL CITIES

Whip the old system back into shape. Certain parts are subject to wear—others need adjustment. Units may require only minor attention.

Avoid make-shifts and unreliable repair work. The satisfactory performance of electrical units is dependent upon the character of the parts and skill employed.

Avoid delay in the ordering of parts or the sending of units for repairs. Certain delays, even though manufacturing conditions are improving, are bound to occur. Keep up the morale of your business organization.

Take up your service problem with us. The systems must give the service you have a right to expect. It may be more economical to have the old unit repaired than purchase a new one.

If without ample repair facilities refer your work to our Service Stations. Faulty wiring is frequently the cause of difficulty. Examine system carefully to assure permanency of repair work.

Names and address of service stations in Automobile Directory or write us for name of nearest service station.

GRAY & DAVIS, Inc., Boston, Mass.

Something New
Something Better

Woven asbestos clutch facing when introduced by The Raybestos Company many years ago, initiated a new era in automobile practice. At that time, long-fibre asbestos—suitable for weaving high-grade clutch facing or brake lining, was plentiful.

Durability in the woven facing, is measured almost entirely by the *length of asbestos fibre* employed. But only 10 to 12% of all asbestos mined is suitable for weaving into facings or brake lining capable of sustaining the Raybestos *guarantee.* Only *long fibre* asbestos can be *woven* into heat-and wear-resisting fabric. Shorter fibres necessitate the use of binder and filling which *will not withstand high temperatures,* causing the fabric to disintegrate rapidly and the surface falls to pieces.

The increasing difficulty in obtaining "spinning fibre" (due to growing demand), led Raybestos engineers to investigate the problem 3 years ago. After 2 years of tests and experiments, we produced Raybestos MOLDED Clutch Facing. It has since undergone a year's service on a large number of cars in the hands of owners.

Raybestos MOLDED Clutch Facing contains 73 to 75% asbestos, as compared with 40 to 45% for high-grade woven fabric. The balance is cotton and brass wire, which does not contribute to wearing surface.

Every part of the surface gives effective power-transmitting contact and 100% friction hold as compared with 50 to 60% for the best woven facing as only the high spots of woven fabric *take hold.* Woven facing wears down to the wire foundation without bringing more than 70% effective surface into contact.

There is no wire in Raybestos MOLDED Facing to limit service or life. It will wear down to a wafer without causing metal-to-metal contact which destroys efficiency of the woven facing. Raybestos MOLDED Clutch Facing after 15,000 miles service shows scarcely any wear. *We have not yet succeeded in wearing this facing to a point where replacement is necessary!*

After a short time, Raybestos MOLDED Clutch Facings take on a glass-hard polish that renders contact surface almost immune from wear, since practically 75% of the surface is pure asbestos *embedded* in a rocklike binder, durable as the mineral itself. The two are intimately mixed and put together under very heavy pressure and then permanently consolidated by baking at high temperature—higher that the facing can be subjected to even under abuse.

At no time is the woven facing ever more than 50 to 70% efficient, since only the high spots make contact. Raybestos MOLDED Facing is 100% efficient and less spring pressure is required to carry the load.

There is a substantial reduction in cost over woven facings of Raybestos quality, because expensive foundation materials, brass wire and copper, are eliminated and manufacture simplified.

Raybestos MOLDED Clutch Facings are *endless.* They are made in one *continuous* ring obviating numerous troubles experienced with the old-style woven facing on account of the ends or joint catching in the clutch drum or housing, causing clutch to grate or even causing it to fail to release properly.

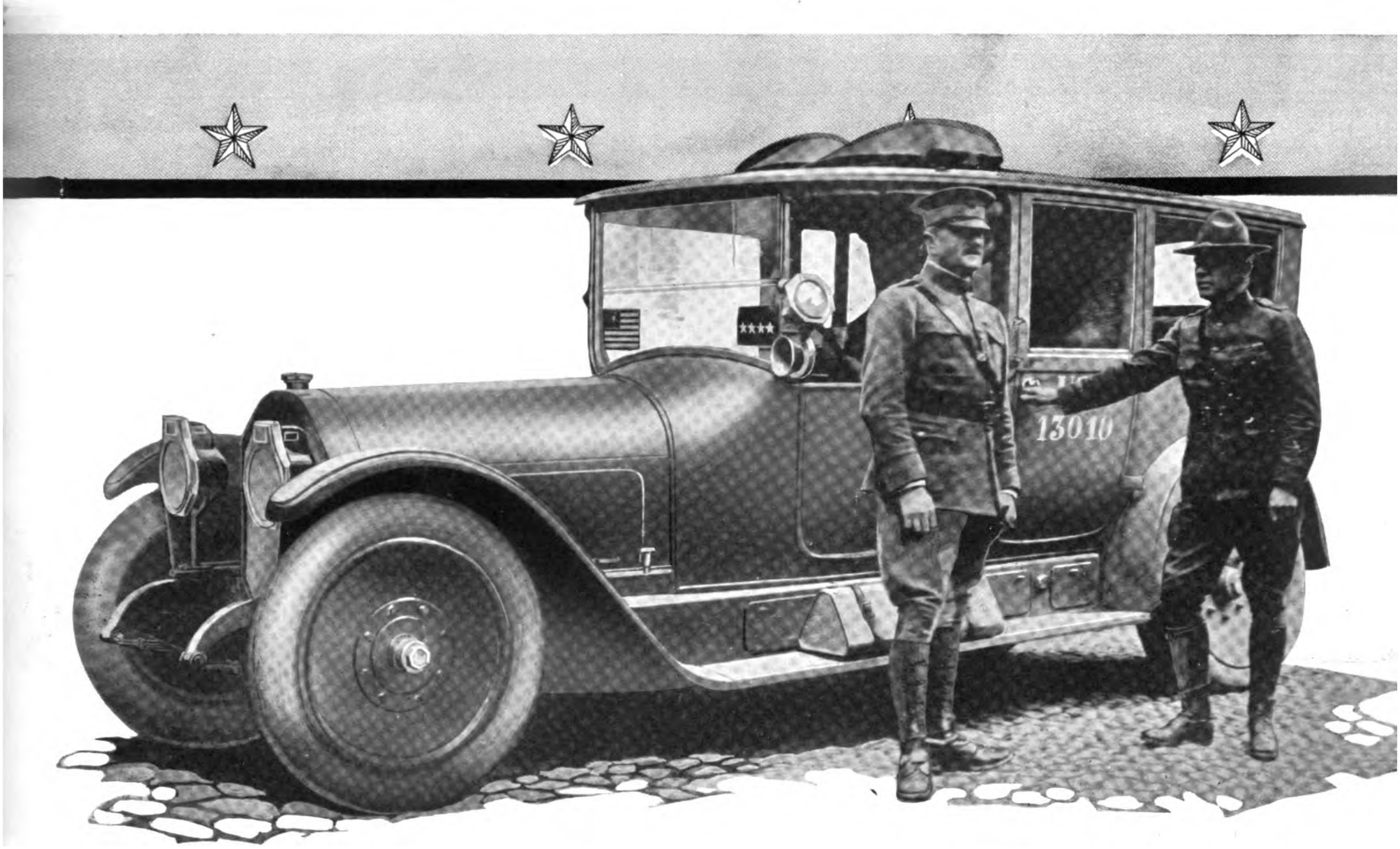
MOLDED CLUTCH FACING

Improves Any Clutch

Raybestos

MOLDED CLUTCH FACIN

(PATENTED)



Where Efficiency is not only Expected, but Demanded

At U. S. Army Headquarters, efficiency is the first law and the real test of machines and men. Only the very finest practice in automobile construction can survive the gruelling test of army service. Hence:—

Gen. Pershing's LOCOMOBILE is Equipped with

Raybestos MOLDED Clutch Facing

And in selecting this clutch facing, the LOCOMOBILE engineers have again sustained the high standards which we associate with this splendid car—Quality throughout: high efficiency down to the most minute detail, which naturally includes the clutch facing—Raybestos *molded* clutch facing.

Raybestos
MOLDED CLUTCH FACING
(PATENTED)

MOLDED
Improves Any Clutch
CLUTCH FAC

A Gu

that means

RAYBESTOS MOLDED CLUTCH FACING is definitely guaranteed.

Should it break or the facing fail to stand up, we agree to replace it free of charge and allow, not to exceed 8 hours labor costs for taking down and reassembling clutch if due to facing trouble.

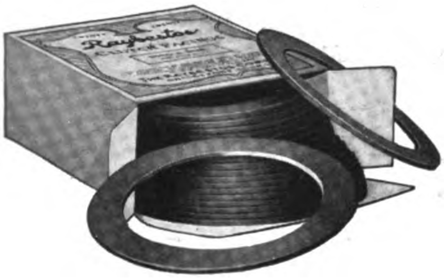
arantee

something

Guarantee covers six months' service on passenger cars and light trucks, extending from date of installation, or purchase of new car.

If RAYBESTOS MOLDED CLUTCH FACING does not substantiate our claims, return facings to us, together with repair bill for labor (not exceeding 8 hours) and we will *promptly send you check.*

The Greatest Step Forward Since the Disc Clutch was Invented



This is the *greatest* step forward since the inception of the disc clutch. In battle—on tanks, trucks, motorcycles, service cars, Raybestos MOLDED Clutch Facing demonstrated remarkable efficiency.

In providing this improvement, we have practically revolutionized the facing of disc clutches. Old-fashioned woven facing is now relegated to the scrap heap. Who can be content with obsolete practice when they can have Raybestos MOLDED Clutch Facing?

We have expended two years' time: thousands and thousands of dollars and exhaustive experiments in providing this better product. The instantaneous response of the Trade shows how urgently Raybestos MOLDED Clutch Facing was needed and how splendidly it fulfills *all* requirements.

Raybestos
DISC CLUTCH FACINGS

PACKED IN CARTONS

20 Rings to the Carton

Printed outside each carton, is the size of rings and names of cars using that size ring.

Raybestos MOLDED Clutch Facings are easy to handle. Easy to stock. Easy to sell. Easy to install. A *small* stock meets practically every demand for clutch facing.

BOOKS OF INFORMATION

For Dealers and Garages

We publish an interesting booklet on Raybestos MOLDED Clutch Facing. What it is. What it does. Also another booklet which gives the names of cars, sizes required, prices and directions for installing.

Send for your copy to-day.

MOLDED CLUTCH FACING

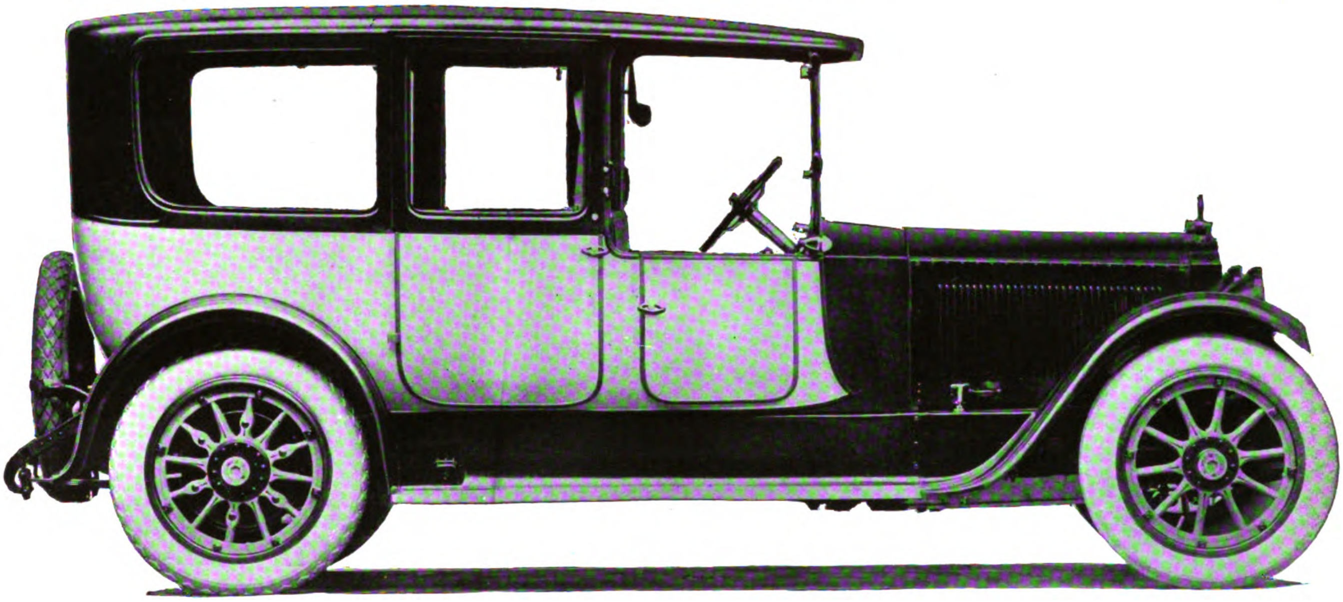
Improves Any Clutch

Raybestos

MOLDED CLUTCH FACING

(PATENTED)

On America's Leading Automobiles



America's leading manufacturers have invariably adopted a "show me" policy—and it is a wise policy. They have been loath to accept anything new until that product *proved* infinitely better than existing materials.

Therefore, we consider that Raybestos MOLDED Clutch Facing has received the highest possible commendation, for it is found in *foremost cars for 1919*. This is positive, undeniable evidence that this facing exceeds in performance any other device intended for the same purpose. It is not a question of "price," but of getting a product which brings a distinct improvement into motor car efficiency.

Cars of *every* class: trucks, tractors and tanks are equipped with Raybestos MOLDED Clutch Facing, because *it has actually revolutionized the efficiency of the disc clutch* and for no other reason!

MOLDE

Improves Any Clutch

CLUTCH FAC

Raybestos

MOLDED CLUTCH FACING

(PATENTED)

Raybestos

LEADERSHIP

Again demonstrated

First—in quality of material
First—in quantity of production
First—to devise asbestos brake lining
First—to produce practical automobile brakes
First—to solve the problem of making disc clutch facing better

Raybestos MOLDED Clutch Facing is patented and guaranteed with a *real* guarantee which is absolutely definite.

THE RAYBESTOS COMPANY, Bridgeport, Conn.

Manufacturers of Raybestos Brake Lining and originators of every worthwhile improvement in brake lining and clutch facing

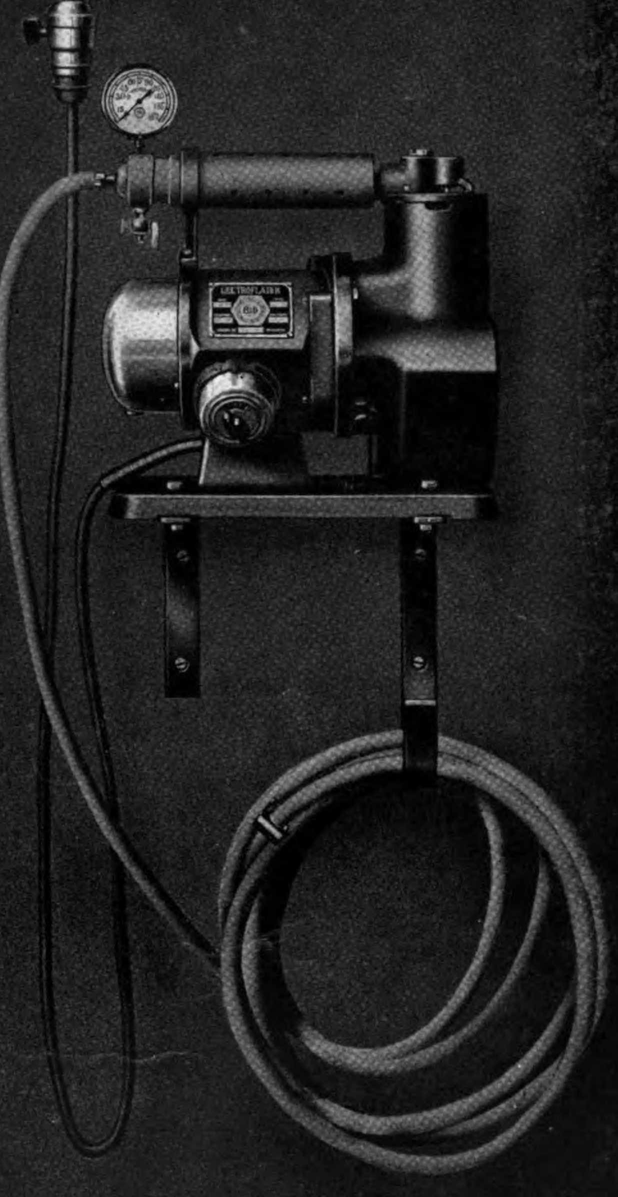
MOLDED
Improves Any Clutch
UTCH FACING

Raybestos
MOLDED CLUTCH FACING
(PATENTED)

BLACK & DECKER

LECTROFLATER

ELECTRIC AIR COMPRESSOR



WALL TYPE

A self-contained unit which can be conveniently mounted on a wall or pillar.

The unit construction is an outstanding feature of Black & Decker design. It affords protection against abuse, excludes dust and grit from moving parts and maintains correct alignment, preventing undue friction and wear.

Lectroflater Electric Air Compressors are cooled by forced circulation of air all through the housing and will not overheat. This is a patented feature. There is no water to freeze up.

Grease lubricated throughout. No oil used. Leave factory fully lubricated and require repacking with grease only three or four times a year.

The motor is one-half horse power, and operates from an ordinary electric light socket on any current from Direct to 60 cycle Alternating.

Lectroflater Electric Air Compressors are made in different styles to suit various requirements.

THE BLACK & DECKER MFG. CO.
SPECIAL
B&D
MACHINERY
BALTIMORE MD. U.S.A.

May we send you complete information?

THE BLACK & DECKER MFG. CO.

120 S. CALVERT STREET BALTIMORE, MD., U. S. A.

Portable Electric Drills **Electric Valve Grinders** **Electric Air Compressor**

BRANCHES:

New York, N. Y. Philadelphia, Pa. Atlanta, Ga. San Francisco, Cal.
Chicago, Ill. Buffalo, N. Y. Boston, Mass. Columbus, Ohio. London, Eng.

NEVER-LEAK

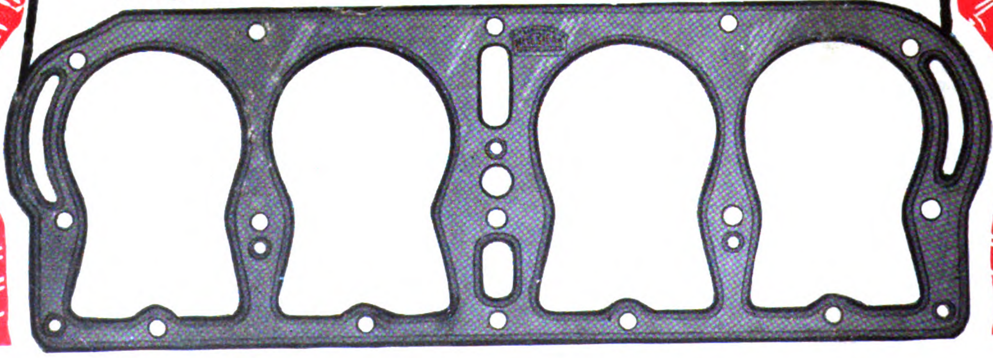
CYLINDER HEAD GASKETS

Are 100% Stronger
Practically Indestructible

Are all metal, enclosing asbestos fabric, with seamed edges that cannot break or blow out, as 75 per cent. of other types are destroyed, while removing or after replacing an engine block head. No other gaskets have this construction. We are the world's largest gasket manufacturer. The quality of these gaskets is absolutely guaranteed. Cost no more than obsolete types. No conditions of sale but perfect satisfaction. Service experience justifies this.

Personal attention to and prompt deliveries of all orders.

Fitzgerald Manufacturing Company, Torrington, Connecticut



THE NEW YORK PUBLIC LIBRARY
REFERENCE DEPARTMENT

This book is under no circumstances to be taken from the Building

form 410